PAPER TRADE JOURNAL

VOL. 122 NO. 23 JUNE 6, 1946

60th YEAR
1886—1946

In 1886 . . .

The fountain pen, invented only two years before, was coming into popular use.

Throughout the world, pen and paper are two of civilization's most useful and indispensable tools.

1946 marks our sixtieth year of close association with the Pulp and Paper Industry. Each new year means increased experience and new opportunities to serve, and for us the hope and will to do so as faithfully in the future as in the past.

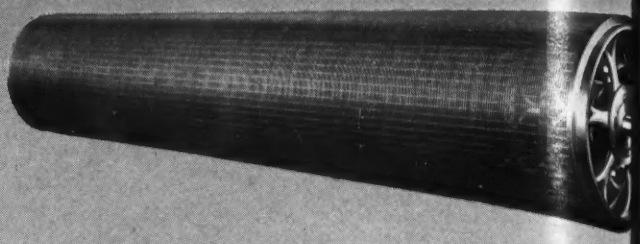
GOTTESMAN & COMPANY
— INCORPORATED —

WOOD PULP

22 EAST 40th STREET • NEW YORK 16, N. Y.
EUROPEAN OFFICES: Birger Jarlsgatan 8, Stockholm, Sweden

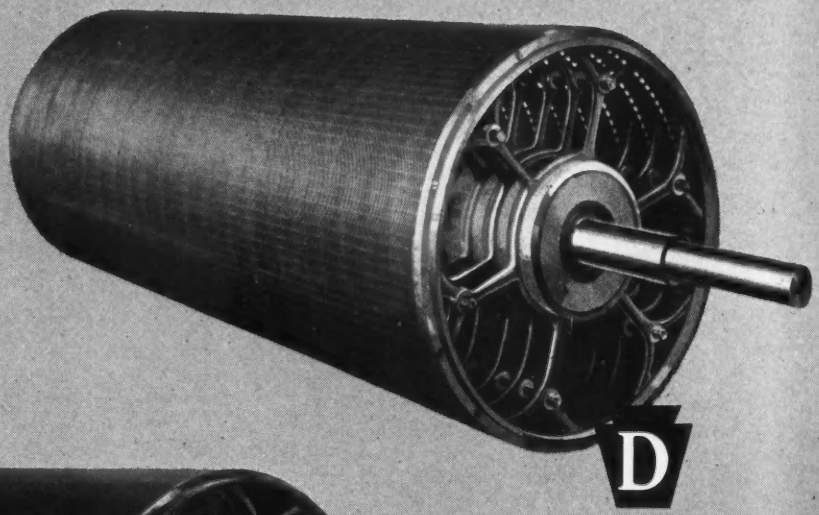
Paper Trade Vulnerable, Tinker Tells Salesmen
B.S. & W. To Proceed With Sulphite Pulp Mill
Berkshire Paper Mills Grant Raise in Pay
NEPCO Forest Pays Dividends in Wood
Paper Output Draws Heavily on Pulp Inventory
Marathon Corp. to Offer 420,000 New Shares
Londergan Talks Before New England Trade
Waxed Paper Group Will Meet June 12

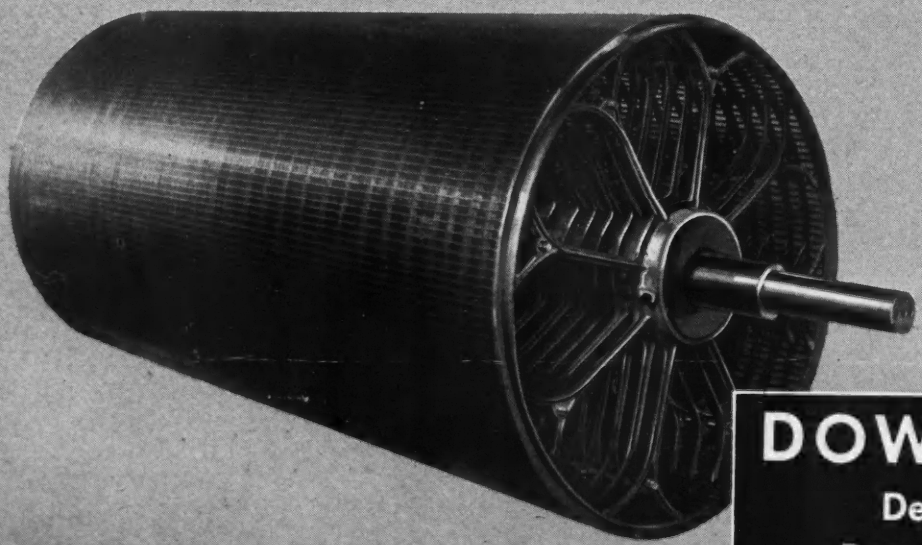
Why "Cylinder Moulds" Built by the Makers of Extractor Rolls Give You Something "Extra"



Who ever heard of a Cylinder Mould taking loads of 60 to 100 lbs. per lineal inch? They don't, but Downingtown Extractors, which are similar wire faced rolls, take these nip pressures day-in-and-day-out. Of course, our over 60 years' experience in building Cylinder Moulds helped us develop Extractors to take this heavy punishment. Likewise, our experience in building Extractors now helps us make Cylinder Moulds that are "Built Like a Battleship." Cylinder Mould nip pressures of 25 to 40 pounds per square inch are nothing for our heavy construction employing the best materials and careful workmanship.

DOWNINGTOWN MFG. CO.
DOWNINGTOWN, PA.





PHOTOS — TOP TO BOTTOM
Small, Heavy Duty Mould, 18" dia.
Special, Light Duty Mould, 36" dia.
Extra Heavy Duty Mould, 48" dia.
Large, High Capacity Mould, 60" dia.

DOWNINGTOWN
Designers & Builders
Paper Making Machinery

PAPER TRADE JOURNAL

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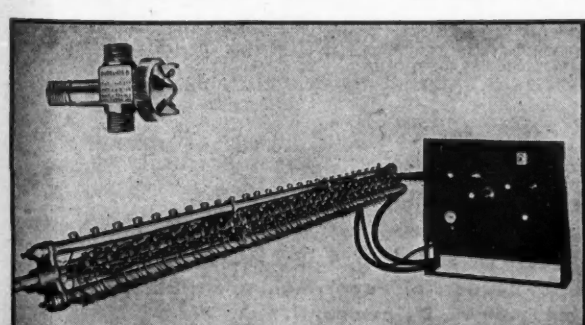

SPRACO BATTERY SPRAY MOISTENING EQUIPMENT

For the application of moisture in the form of coarse spray, fine spray or mist of uniform density across any desired width of web, with controls for varying the amount of moisture sprayed, at the same time maintaining uniform distribution.

WRITE FOR NEW TECHNICAL BULLETIN

SPRAY ENGINEERING CO. 118 CENTRAL STREET SOMERVILLE 45, MASS.

PAPER · · · America's 6th Industry

PAPER BAGS FOR GARBAGE DISPOSAL

(NEWS ITEM: *The modern way to dispose of kitchen waste is a paper bag made to fit a newly-designed container.*)

A disposable paper bag fitted into a wire frame inside a ventilated, chemically deodorized refuse can is the latest method of garbage disposal. You merely step on a treadle. Up comes the bag, weathertight, odorless and ready for clean and easy disposal.

There are thousands of new uses for paper . . . bags for vacuum cleaners . . . drums for chemicals . . . cans for food . . . plates for printing . . . each new use calling for new standards of lightness and toughness, new standards of quality in performance. New responsibilities—new opportunities for the Pulp and Paper Industry.

The Puseyjones Organization is now devoting itself completely to the design and construction of Paper-Making Machinery built to new high standards of speed and efficiency, and to the modernization of existing machines.

Among the new machines under construction by Puseyjones are three of the largest and fastest Fourdrinier Machines, one for book and high grade printing, one for white paper for bags, and one for Kraft liner board; also one Cylinder machine of record size and speed for the manufacture of floor covering felt. Other machines are under construction for the manufacture of M. G. Kraft specialties, facial tissues and high grade bristols.

Puseyjones Engineers will welcome the opportunity to work with you in solving production problems.

THE PUSEY AND JONES CORPORATION
Established 1848. Builders of Paper-Making Machinery
Wilmington 99, Delaware, U. S. A.

THE SIGN OF TRADE MARK SUPERIOR QUALITY

PAPER TRADE JOURNAL
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Title Reg. U. S. Pat. Off.

Wolf-Fox Watershed Asks Federal Aid

APPLETON, Wis.—The Fox and Wolf River Control Association has filed a 28-page brief, containing its proposal for the federal government's action for the construction of Wolf River reservoirs for the benefit of the entire Wolf-Fox watershed.

The association includes paper mill and other industrialists, farmers, sportsmen and others interested in controlling the floodwaters of the Wolf River Valley. It asked that the national government make a complete survey of the central Wisconsin area "in further exercise of its acknowledged jurisdiction, thereby assisting in the abatement of pollution, in the reduction of floods, in regularizing the river water supply, and in improving navigation and recreational facilities."

To support its plea for federal, rather than state or local government, action on river control, the association said:

"Practically all uses and abuses of public waters now are under control of the federal government. Irrigation, flood control, water power and navigation all are developed at the federal level."

Partial exercise of federal jurisdiction during the last 75 years in the interests of navigation only on the two rivers has been a "material factor in the seasonal pollution of the river, the floods and the irregular river water supply. Moreover, it does not provide the regular river flow which is advantageous to navigation," the brief stated.

The association's carefully-documented proposal emphasized chiefly the benefits to central Wisconsin agriculture and to industries, chiefly paper mills, on the lower Fox River, that would be gained by adequate management of the Wolf.

It said that such management would require the construction of dams and reservoirs on the upper Wolf and its several tributaries, and that such reservoirs should be used for the multiple purposes in the association's program. The brief said that the natural reservoir for the Wolf-Fox River System, Lake Winnebago, is presently unable to accommodate the flood waters of the system.

The association declared that there "must be a change in operational philosophy from "getting rid of flood water" to "controlling and conserving excess water."

Industry is Vulnerable, Tinker Reminds Salesmen

E. W. TINKER
Talks Facts to Sapeyes

CHICAGO—Placing the paper industry's position of vulnerability to the planned economy and to the current free trade philosophy as the major long range problem of the trade, E. W. Tinker, executive secretary of the American Pulp and Paper Association, on May 27 urged members of the Salesmens Association of the Paper Industry to constantly discuss the seriousness of the situation and to let the customers know what it would mean for the trade to contribute not only "blood, sweat and tears" but "jobs" as well to the philosophy.

Talking before 125 members of the western division and their guests, Mr. Tinker did a masterful job of outlining the current and future position of the pulp and paper industry and warned that there was grave danger of an over-expansion which would soon plunge the trade into its "old position as a low profit industry". He warned that current interest of financial centers in the paper situation and that the policy of the Reconstruction Finance Corporation to loan on a collateral basis and without regard for other industries in the field could very shortly bring the industry to an abandonment of a sellers market and back into the low returns "which have characterized the paper trade since its inception."

The speaker commented on the "magnificent labor relations" job done by the paper trade, a record which showed "virtually no strikes, which was a great credit to both the union and the employer leadership." He pointed out that had not this record been made the industry would be in an exceedingly bad position at the present time.

Mr. Tinker said there was more paper now than the country ever dreamed of. He added that this record had been made despite the regimentation of the paper industry wherein the manufacturers "could not even control their own destiny and where OPA had devised unnecessary processes to heap hidden inflation on to the customer." He warned that a continuation of current OPA thinking would increase the suffering of the customer

(Continued on page 25)

National Gypsum to Spend $16,500,000 on Expansion

BUFFALO, N. Y.—Improvements and extensions to paper mills of the National Gypsum Company in Kalamazoo, Mich., will be provided in a $16,500,000 expansion program just announced here by the company. These plans were disclosed in a prospectus provided to the Securities & Exchange Commission in connection with the sale of 275,000 shares of $1 par value stock to provide approximately $8,000,000. The company also proposes to add $500,000 to working capital to be used to carry increased inventories and for increased accounts receivable for the new facilities.

CPA Approves Parsons Building

SPRINGFIELD, Mass. — The newly-appointed committee of the Civilian Production administration for Western Massachusetts has granted permission for the Parsons Paper Company of Holyoke to proceed with the construction of a building to house machines and equipment used in the manufacture of paper. The cost of this construction has been set at $500,000.

Donohue Brothers Offers Common

MONTREAL—Donohue Brothers Limited, successors to Murray Bay Paper Company, of Murray Bay, Que., last week offered 35 thousand of its authorized and outstanding 150,000 shares of the common stock. The offering was made by a group of investment houses at $20.50 a share, and in view of a proposed dividend rate of $1 a share annually on the stock, a yield basis of $4.88 per share on the issue is suggested. Application is being made for the listing of the stock on the Montreal Stock Exchange.

Originally incorporated in 1920, under the name of the Murray River Power and Pulp Company Limited, the name was changed to the present designation in 1921. The approximate capacity of the company's mill is 50,000 tons of newsprint annually, and the prospectus issued in connection with the stock offering states that the company has under lease from the Quebec Government 420 square miles of timber limits estimated to contain 1,500,000 cords of pulpwood, and that an additional section of 80 square miles, not yet located, has been authorized. At present the entire newsprint output is under contract to Scripps-Howard and Hearst interests in the United States. The company also manufactures mechanical groundwood pulp.

The balance sheet shows total assets of $6,568,747, with current assets of $1,698,512 and current liabilities of $104,122, indicating net working capital of $1,594,389. Net profits for 1945, after all charges and tax provisions, are shown at $214,134, or $1.42 per share, and according to the prospectus net profits for 1946 are estimated at approximately $1.60 per share.

The present board of directors is composed as follows: George T. Donohue, president; Mark Donohue, vice-president; A. Emile Beauvais, secretary. It is the intention of the company to increase the number of directors to seven, the following shareholders having already accepted: Charles Donohue, chairman of the board; Lt.-Col. L. J. Adjutor Amyot; J. D. Coffin and Major Paul M. A. Simard.

Canada's Export Record Shows Sharp Rise in Values

MONTREAL—Continued expansion is reported in the value of Canada's exports of forest products. According to returns just issued exports in the wood and paper group in April were valued at $46,373,000, as compared with $37,018,000 in April, 1945, newsprint paper advancing again to $20,999,000 from $14,819,000, wood pulp to $9,284,000 from $8,262,000, and planks and boards to $7,610,000 from $6,500,000.

Canada's Trade Commissioner in London reports that Sweden and Finland contributed largely to the doubling in quantity and value of imports of paper-making materials by the United Kingdom in 1945. Those of bleached dry chemical woodpulp rose from 61,649 in the previous year to 150,029 tons, and those of dry unbleached from 212,951 tons in 1944 to 315,409 tons. Importation of wet mechanical woodpulp increased almost fourfold to 173,436 tons.

Adams District Mills Adjust Wage Rates

ADAM, Mass. — Wage increases for employes of the Brightwater Paper Company and the L. L. Brown Paper Company were announced this week. At both plants the increases will amount to 8½ cents an hour which is the same as granted for other paper mill employes in this area last week.

At the Brightwater Paper Company the increases will affect approximately 300 employes. The increase at Brightwater is at the rate of five cents an hour retroactive to May 1 and an additional three and one-half cents an hour starting June 3 and will conform with the amount of general increases in the paper making industry. Both of the rates are subject to confirmation by the wage stabilization board. Under the contract with the United Mine Workers union, official bargaining agent, there are six paid holidays at the plant, Memorial Day, Fourth of July, Labor Day, Thanksgiving, Christmas and New Year's.

At the L. L. Brown Paper Company the wage increase as at the rate of 8½ cents an hour, effective as of June 1. Approximately 130 employes at the plant will benefit by the increase.

North Carolina Cords Now Measure 128 Cubic Feet

RALEIGH, N. C.—Effective Saturday, June 1, all pulpwood must be sold and bought on the regular cord basis of 128 cubic feet. C. D. Baucom, superintendent of the weights and measures division of the North Carolina Department of Agriculture, said the 1945 legislature permitted the unit measure of 160 cubic feet to be used in transactions involving fuel and pulpwood through May 31.

NEPCO Raises Pay Rate

WISCONSIN RAPIDS, Wis. — About 2,000 employes of the Nekoosa-Edwards Paper Company received wage increases effective June 1, according to an announcement May 27 by John E. Alexander, president and general manager. All hourly employes received a five-cent increase. Also included was a liberalized insurance plan and adjustment of the vacation plan from a 98 and 46 to an 88 and 44-hour basis. The five-cent increase is in addition to the 15-cent boost granted when Nepco reconverted to a 40-hour week.

Paper Output Draws On Pulp Inventory

WASHINGTON, D. C.—Production in the pulp and paper industry maintained in April 1946 the record level set in March. Paper and board production at 1,635,286 tons was less than 3,000 tons under the March high record. The differences in output by grades between March and April were insignificant. The largest change was in building paper, in which April output exceeded March by 7,000 tons.

Pulpwood receipts in April at 1,440,772 cords were 275,000 cords under March figures. The lower receipts occurred in the Northeast, the Lake States and the Pacific Coast regions, where reduced receipts are usual at this time of the year.

Pulpwood consumption, however, was almost identical with the March record. Despite these withdrawals, inventories were still at levels comparable with those of the war years, although considerably below normal prewar levels.

April receipts of fibrous materials other than wood pulp were above March records. Inventories at the end of April were generally in better condition than in March.

Domestic production of wood pulp was 904,826 tons in April, about 10,000 tons under March. Wood pulp consumption in paper and board manufacture at 1,045,849 tons was lower also, but by only 3,000 tons. The high consumption rate was attained by withdrawals of 53,000 tons from inventories, necessitated by the seasonally low receipts of wood pulp from Europe. Consuming paper and board mill inventories of wood pulp were reported at 520,412 tons at the end of April. Although this figure is 53,000 tons lower than the March record, it is higher than any April figure since 1943.

Schulman Joins Dejonge Board

Louis Schulman, president of Louis Schulman Co., Inc., New York, A. S. Datz & Son, Inc., Philadelphia and Springfield Coated Paper Corporation, Camden, N. J., has been elected a director of Louis Dejonge & Company, New York, manufacturers of box papers. Two other new directors on the Dejonge board are Samuel W. Ziegler and John Blakle, general manager and assistant manager respectively of the Schulman enterprises, all replacing others on the board.

Mr. Schulman has been in the paper busines for over 40 vears, with headquarters in New York. Back in the early 30's he purchased the old established firm of A. S. Datz & Son, Philadelphia and later Processed Papers, Inc., mill in Camden, and the Springfield Glazed Paper Corporation, Springfield, Mass., merging them in Camden as Springfield Coated Paper Corporation where they have two converting plants.

Rail Strike Failed To Halt Holyoke

HOLYOKE, Mass. — The short-lived railroad strike failed to hurt paper mills here, a PAPER TRADE JOURNAL survey revealed.

The Parsons Paper Company reported that it had enough pulp on hand to see the mill through the crisis. The Valley Paper Company had a moderate supply on hand and the Chemical Paper Company reported it weathered the second work stoppage although it was forced to close for one day when the freight embargo was imposed as the original strike deadline neared.

The American Writing Paper Corporation, which can pool raw materials among its mills, had a month's supply on hand and the Crocker-McElwain Company had an adequate supply.

Two Holyoke paper mills were the luckiest in New England as the rail supply cut off most of the pulp supply. The Newton and Franklin plants, board mills, get most of their raw materials in the form of waste paper collected in this region by truck.

Waste Dealers Special Is Nearly Sold Out

As an indication of the large attendance that is anticipated at the Fall Convention of the National Association of Waste Material Dealers, Inc., to be held at the Palace Hotel in San Francisco from September 14th to 17th inclusive, Clinton M. White, who is handling the transportation details for the Association, has announced that more than two hundred reservations for the special train through the Canadian Rockies have not only been made, but that a $200 deposit has been forwarded to the Association in each case. In addition, there are close to fifty others whose reservations are equally certain, but who have not as yet deposited their checks. This means that the Association will soon have to stop accepting any further reservations.

Mr. White also believes that the prospects are more than good for a special train back to Chicago from Los Angeles at the conclusion of the convention and the social features that will later be held at Los Angeles. This special train would leave Los Angeles on the morning of September 21st, arriving in Chicago on the 23rd in time for passengers to connect with Eastern trains.

Bruce Perkins to Wed

HOLYOKE, Mass.—Bruce G. Perkins, a World War II veteran, now associated with his father at B. F. Perkins and Sons, Inc., Chicopee, manufacturers of paper finishing machines, is engaged to wed Elinor Nadeau of Holyoke, a receptionist at the National Blank Book Co. office.

Chicago Paper Supply Begins to Increase

CHICAGO—Reports here indicate that merchants are getting more paper but that the demand is still far in excess of needed requirements. Statements coming from mill sources indicate that the labor situation is improving and that some betterment is indicated in shortages of products needed in the manufacture of paper. Newsprint was still in a very tight situation with newspapers, however, running lighter because of rail and coal tie-ups and for other reasons. The entire line of printing papers remained very firm, at top ceiling prices, with many jobbers indicating that their inventories had somewhat improved.

Ceiling prices were reported posted for waste paper, with collections said to be slightly improved. Inventories of mills were said to have been expanding but there continues to be uncertainty because of the coal situation.

E. H. Larkin Joins Duffy In Charge of Sales

MINNEAPOLIS, Minn.—C. J. Duffey, president, C. J. Duffey Paper Company, has appointed E. H. Larkin as sales manager of the firm. In addition Mr. Larkin will be in charge of mill contacts.

Mr. Larkin has a wide experience and acquaintance in the paper manufacturing and jobbing business, having commenced this work in 1913 with Seaman Paper Company, in Chicago. In 1930 he opened the Chicago sales office for the Bryant Paper Company, Kalamazoo, becoming general sales manager of that firm in 1934.

In 1936, Mr. Larkin became vice president and general sales manager of Wausau Paper Company, and in 1938 returned to Bryant Paper Company as vice president and general sales manager.

Gaylord Bogalusa Mill Resumes Operations

BOGALUSA, La.—Work was resumed Tuesday, May 28, at the paper mill of Gaylord Container Corporation, after a shutdown of several days, due to pulpwood shortage, occasioned by the recent heavy rainfall. Vertrees Young, executive vice-president, stated that there was now sufficient pulpwood on hand to warrant continued operations unless there is another spell of prolonged rainy weather.

Crane Expands Office Space

DALTON, Mass. — Construction has begun at Crane & Company to enlarge the office 1,600 square feet by adding another story to the office building on South street. Several other additions have been made, the present one to affect only the original or main portion of the building. Work will be completed this summer.

B, S & W Proceeds With Sulphite Pulp Mill

PORT ALBERNI, B. C.—According to details recently released by Bloedel, Stewart & Welch Ltd., the new sulphite pulp plant will provide employment for 325 workers in three shifts, and will produce more than 160 tons every 24 hours.

Plans show four main buildings which will serve as the recovery room, digester and screen room, machine room and warehouse. In addition there will be six concrete tanks each 80 feet in height. More than 4,000 piles between 80 and 90 feet in length will provide foundations for the larger buildings.

B. C. Bridge and Dredging Co. Ltd are the general contractors for this project.

Waste wood from the mill will be conveyed to a chipper machine and then carried out from this unit by a conveyor belt 36 inches wide and 4,000 feet long to the digester tank.

The finished product will be packed in 400-pound bales and transported by Ross Carriers to loading ramps for train and boat shipments. To accommodate steamers, a 150-foot wharf is being built adjacent to the mill on the Somass River.

Discuss Reopening of Chicoutimi Pulp Mill

CHICOUTIMI, P. Q. — Reopening of the Chicoutimi pulp mill of the Quebec Pulp and Paper Corporation is again under discussion. A conference on the matter has just been held between Dr. Georges Philippe Tremblay, of Chicoutimi, and Premier Duplessis and Roads Minister Talbot. The mill has been idle for years, and has been in bankruptcy since 1939. No decision was announced following the conference, but it is intimated that a group of young industrialists from the Saguenay region may acquire the mill to manufacture cardboard and other pulp products. Recently Premier Duplessis announced that French industrialists were interested in acquiring the mill for the production of newsprint, but that no decision had been taken by the government. The mill has a capacity of 600,000 lbs. of groundwood (dry) per 24 hours.

Rosemary Gets Out Thilco News

KAUKAUNA, Wis.—The May issue of the Thilco News, house organ of the Thilmany Pulp and Paper Company, was dedicated to "the young men of Thilmany who fought so valiently in defending our inherent right of life, liberty and the pursuit of happiness." Miss Rosemary Seggelink became editor of the magazine with the issue, succeeding Mrs. Helen Miller, who had served as editor since it was established.

Holyoke Mills Add Three Holidays

HOLYOKE, Mass., May 28—An 8½ cent an hour pay raise across the board and the addition of three holidays with pay to bring the total to six comprised the basis for settlement of the Holyoke paper mill wage negotiation. Eagle Lodge of Papermakers and Holyoke Paper Mill Workers union, both AFL, accepted these terms at meetings Sunday.

The six holidays with pay are: Memorial day, July 4, Labor Day, Thanksgiving, Christmas and New Year's. Because the contract did not go into effect until Monday, June 3, Memorial day this year was not a paid holiday.

Last year the contract called for three holidays with pay—July 4, Labor Day and Christmas. The mill owners offered an additional holiday this year and 8½ cents an hour more pay. The negotations deadlocked over this issue with the result that two extra holidays were inserted in the contract. The union request for a checkoff of dues and health and accident insurance clauses was denied.

The Holyoke paper mills granted in November a 7-cents-an-hour raise to those earning 70 cents an hour or less and a 6-cent-an-hour raise to those in the bracket above 70 cents an hour. This averaged 6½ cents an hour and coupled with the 8½ cents granted now brings the total pay raise to 15 cents an hour in the local paper industry.

No price relief has yet been granted the local mills by OPA and until that is forthcoming, it will be hard scratching for the Holyoke plants, officials said today. The American Writing Paper Corporation officials, in anticipating this wage rise, warned stockholders last month that their company will be operating in the red now until OPA allows a price rise.

Perkins Wage Negotiations Await Conciliation

CHICOPEE, Mass. — The negotiating committee of the AFL Federal Labor Union and the management of the B. F. Perkins Manufacturing Company of Willimansett, makers of paper finishing machines, are awaiting the return of Robert E. Cosgrove, federal conciliator, to renew conferences on wage proposals of the union local and the management that will affect some 130 machine workers at the plant.

The union is seeking an hourly increase of 20 cents across the board and the management, in its second offer, has proposed a five cents per hour increase, according to George J. Bernard, executive vice-president of the plant.

The local, newly formed and certified as the bargaining unit for the employes by the NLRB, on April 29 took a strike vote and authorized the negotiating committee to call a strike after 30 days if the committee is not satisfied with the progress of the negotiations. Representatives of the labor union could not be reached but Bernard said that the committee had given the management no indications that it had reached such a stalemate that a strike seemed inevitable.

Central Paper Elects Hartke To be a Vice-President

MUSKEGON, Mich.—J. Ward Hartke, a director during the past eight years, was elected vice-president and treasurer, at a meeting of directors of Central Paper Company, Incorporated, on May 24th, 1946. Hartke was formerly president of the Detroit Paper Products Corporation in Detroit and general manager of the Detroit operations of Inland Container Corporation.

R. D. Terrien was elected controller, which office he will hold in addition to his office as secretary of the company. Hugo J. Hotz, formerly head of the laboratory department, has been appointed general superintendent of production.

Collins Raises Scale And Increases Holidays

NORTH WILBRAHAM, Mass. — The Collins Manufacturing Company has instituted a voluntary wage increase of 8½ cents per hour and three additional paid holidays for its employes, effective July 1.

The company announcement was made at this time although its present contract with the Collins Independent union does not expire until August 1. The union had looked forward to opening negotiations for a new contract later.

Under their old contract, company employes received three paid holidays a year. The company has now increased paid holidays to six.

Schnabel Retires After Firty-one Years

WISCONSIN RAPIDS, Wis.—John E. Schnabel, associated with the paper industry in this area for 51 years, announced his retirement last month, in a letter to George W. Mead, president of Consolidated Water Power and Paper Company. He began work at Biron on July 8, 1895, in the plant known as the Grand Rapids Pulp and Paper Company, now Consolidated's Biron division. Mr. Mead issued a statement praising Mr. Schnabel. Last summer the latter was honored by executives of the company on his fiftieth anniversary in the paper industry.

Carew Names Southern Agents

SOUTH HADLEY FALLS, Mass.—The Henley Paper Company, with warehouses in High Point, Charlotte and Asheville, N. C., has been appointed sales agents for Old Hampshire Bond by the Carew Manufacturing Co.

Nepco Forest Pays Dividends in Wood

WISCONSIN RAPIDS, Wis.—Once regarded as a hazardous experiment, the Nekoosa - Edwards Paper Company's reforestation venture, launched on January 1, 1926, has proved to be a sound business investment. Nepco has purchased more than 100,000 acres for forestry purposes. One half of this acreage is located within sight of the company's mills and the remainder is within favorable freight distance. Today, practically all the pulp and paper mills located on the Wisconsin River have holdings of lands in Wisconsin which are being used for forestry purposes and are under some sort of sustained timber management. Pulp and paper companies of the Wisconsin River Valley have taken the lead in forestry in the Lake States region.

More than 4,500,000 cords of pulpwood have been used by the Nekoosa and Port Edwards mills since 1898. If all the pulpwood used since then were put into a continuous cord pile, it would be 7,289 miles in length.

The present mill requirements are such that under good management it requires a timber area of at least 625 square miles to keep it in pulpwood. The program has grown to a present holding of almost 400 square miles and is supervised by seven trained foresters in the woodlands operations department.

An extensive planting program has been carried on recently and at present more than 16,000 acres have been planted to pulpwood species and over 22,000,000 trees have been planted on company lands by hand or machine methods. Through 1942 the trees were planted by hand. During the war years it was impossible to obtain labor, so machines were developed.

Nepco also has pioneered in fire protection and has consistently set an extremely low fire loss record through the years. Well-laid plans of fire lane construction prevail. Each 160-acre block is provided with company fire lanes, state, county or state roads on all sides, thus making the entire forest area owned in central Wisconsin accessible to fire-fighting trucks.

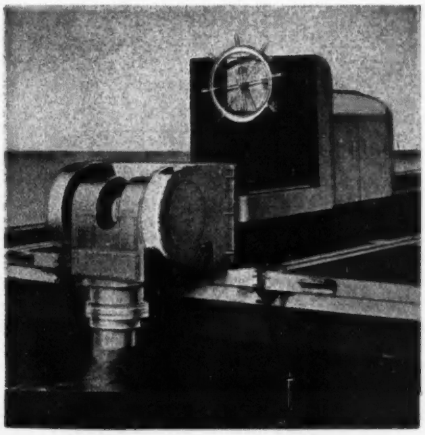
The latest type of fire-fighting equipment is stationed at key points in the system and is of latest design. Since 1926, 47 fires have burned Nepco forest properties totalling about 133 acres, causing damage of less than $800. Greatest damage is caused by insects, fungus, sleet, heavy snow and wind rather than by fires.

Leonard Blake to Wed

SPRINGFIELD, Mass.—Leonard Blake of the Standard Paper Merchandising Co., was given a Bachelor party at the Hotel Charles by 75 business associates. He will be married on the 30th to Miss Mary Glazier.

MURRAY & TREGURTHA'S

HARBORMASTER



Marine operations in the Arctic demand the best! In using compact, heavy-duty "Harbormasters" for exploring and developing the vast new Alaskan petroleum fields, the "Sea Bees" quickly and efficiently transported supplies, heavy machinery and materials from ships at deepwater anchorage directly on to the tundra shore. Whether your operations are in the Arctic, the tropics, on inland, lake or coastal waters, you'll always have the best when you use "Harbormasters" . . . the rugged propulsion Units that deliver the tops in efficiency, power, maneuverability and economy in shallow and deepwater operations. Write today for complete details on all Units ranging from 20 H. P. to 330 H. P., diesel or gasoline—the "Harbormaster" delivers the goods in all waters!

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High Fidelity Marine Engines since 1885

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MATHEWSON MACHINE WORKS, INC. — Manufacturing Affiliate

SHERBROOKE MACHINERIES, LTD., SHERBROOKE, QUEBEC — Licensed Mfr. and Distributor for Canada

OPA Eases Prices On Sheets and Rolls

WASHINGTON, D. C.—Paper manufacturers have been granted higher differentials for operations required in producing sheets and small rolls of wrapping papers used largely by retailers and of specialty paperboard used for making various paperboard products. At the same time, manufacturers' ceiling prices for butcher's paper, grocer's paper and imitation parchment, used largely by retail food stores, have been generally increased.

The actions, effective June 5, 1946, are taken by OPA to help maintain present supplies of these papers.

Prices to the public are not affected, as the papers concerned are sold to stores for wrapping purposes or sold to converters for making paperboard products for industrial puposes.

The thee actions are:

1. Dollar-and-cent differentials ranging from five cents to $1.25 per hundredweight will now apply on cutting and finishing operations required in producing small rolls and sheets of wrapping papers other than kraft. Compared with the former freeze differentials in effect, there will be an increase of 25 cents per hundredweight for the most common operation.

2. Dollar-and-cent differentials ranging from 15 cents to $1 are set for sheeting, trimming, packing, or producing small width rolls of specialty paperboard. These differentials are 50 to 70 cents per hundredweight above the former freeze amounts.

3. Manufacturers have been given a uniform ceiling price of $6 per hundredweight on butcher's paper, grocer's paper and imitation parchment. Former ceilings ranged from $5.37½ to $5.75.

(Amendments 7 and 8 to Revised Maximum Price Regulation 120—Converted Paper Products—and Amendment 4 to Maximum Price Regulation 32—Paperboard—all effective June 5, 1946.)

Badger Mills Ups Pay Scale

PESHTIGO, Wis. — An across-the-board increase of six cents per hour for all employes of the Badger Paper Mills, Inc., was announced May 25 by Walter Adrian, secretary-treasurer, after the spring conference between officers of the corporation and the Papermakers Local 225 and International Pulp and Sulphite Local 125. The old contract expired June 1 but its provisions were renewed and the increase became effective on June 1.

Rayonier Declares Quarterly 50 Cents

Directors of Rayonier Incorporated have declared the regular quarterly dividend of 50 cents per share on the $2 dividend cumulative preferred stock, payable July 1, 1946, to stockholders of record June 14, 1946.

St. Regis Southern Mill to Involve Ten Million Dollars

Southern industrial circles still are speculating as to the next ten million dollar development in paper manufacture, which has been promised for the South. Recently, predicting a substantial increase in paper product requirements over wartime record demands, Roy K. Ferguson, president of St. Regis Paper Company, revealed plans for the company's further expansion and diversification. Mr. Ferguson told stockholders that "Requirements for our products for 1946 are expected to run about 30 per cent higher than the average for the previous five years."

Asserting that the company is. "On the threshold of completing a major expansion program," Mr. Ferguson said his company is planning the construction of a new kraft paper mill "somewhere in the South." The new plant, he said, should be ready for production early in 1948. He estimated that it would cost ten million dollars and employ approximately 2,000 workers.

Standard Envelope Celebrates Third of a Century

CLEVELAND—The Standard Envelope Company, on Saturday, May 25th, at 6:30 p. m., celebrated its thirty-third anniversary. In the recently enlarged Standard Envelope Building, at 1600 East 30th Street, it entertained the 145 employees with a buffet dinner and dance, held on the third floor of the new addition to the plant.

The recent $200,000,00 two-story addition to the plant, containing 30,800 square feet of floor space gives the company a total of 75,00 square feet of manufacturing, storage and office space. Other changes include a new lunchroom, a new hospital room, new rest rooms and enlarged offices. Production now averages about 40 million units per month.

Container Corporation To Open Box Plant at Sioux City

SIOUX CITY, Iowa—To more adequately serve its present customers and to take care of the demands of Sioux City's growing industrial community, Container Corporation of America has leased space from the C. T. Hopper Furniture Company for the installation of a plant to produce corrugated shipping containers.

The Sioux City unit will be part of the Western Container Division which is under the direction of J. V. Spachner, vice-president at Chicago.

Supervision of the Sioux City plant will be responsibility of the Rock Island Division, of which J. G. Robinson is general manager and C. B. Bishop is sales manager.

Congress Asks Bids On Paper, June 17

WASHINGTON, D. C.—The Joint Congressional Committee on Printing will open bids on June 17 for paper for the use of the Government Printing Office for a three-months period, beginning July 1. The Joint Committee will meet on June 24 to consider awards. The paper asked for includes the following:

370,000	pounds catalog news.
1,980,000	pounds machine-finish book paper.
200,000	pounds English-finish book paper.
700,000	pounds offset book paper.
50,000	pounds antique book paper.
80,000	pounds 50% antique book paper.
400,000	pounds supercalendered book paper.
2,150,000	pounds coated book paper.
50,000	pounds dull coated book.
4,100,000	pounds mimeograph paper.
100,000	pounds duplicator copy paper.
250,000	pounds U S M O safety writing paper.
14,650,000	pounds writing paper.
158,000	pounds map paper.
320,000	pounds manifold paper.
2,740,000	pounds bond paper.
1,300,000	pounds ledger paper.
700,000	pounds index paper.
80,000	pounds cover paper.
200,000	pounds manila paper.
350,000	pounds kraft paper.
50,000	pounds desk blotting paper.
10,000	pounds high-finish red sulphite paper.
100,000	pounds tag board.
20,000	sheets railroad board.
190,000	pounds wood cardboard.
100,000	pounds chemical wood tan board.
5,250,000	pounds postal card paper.
170,000	pounds binder's board.
40,000	pounds chestnut coverboard.

In cases where more than 1,000 reams are called for, proposals will be received for 1,000 reams or more.

Magnus Contributes to Communications Progress

FITCHBURG, Mass. — Magnus Metal Division of National Lead Company has shipped to the Kearney Works of Western Electric Company, a number of quartz crystal sawing machines which are used in shaping the crystals employed as frequency selectors in telephone circuits. As many as 480 messages can now be sent simultaneously in a single quartz crystal equipped circuit. The machines were designed by the Fitchburg plant engineering department under the direction of the plant's mechanical engineer, Frank Dustan.

Mr. Dustan is the inventor of the "Hardy" Fabricated Chrome Nickel Steel Screen plate now widely in use on flat and rotary screens.

WHERE WET STRENGTH COUNTS—

—count on UFORMITES 467 and 470!

Paper toweling is just one of many applications for which Uformite 467 and Uformite 470 are especially valuable. For these urea formaldehyde resins increase wet strength easily and economically.

Uformite 467 is particularly designed for use with Kraft by beater addition. Uformite 470 is recommended especially for sulfite stocks but can be used effectively with Kraft, rag and groundwood—in stocks where low acidity is important.

Neither Uformite 467 nor 470 require any major change in your regular operating procedure. No pretreatment or special handling is required. As little as 1% resin solids on dry fibre weight will increase wet strength as much as 30%!

In addition to high wet strength properties, Uformite 467 and Uformite 470 improve dry tensile and Mullen, fold, uniformity of sizing, and coating surface characteristics.

See for yourself how these wet strength resins can increase the value of your paper production at low cost.

UFORMITE *is a trade-mark, Reg. U. S. Pat. Off.*

THE RESINOUS PRODUCTS & CHEMICAL COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Abitibi Statement Expected as Hint

TORONTO, Ont.—It is generally understood in financial circles here that the financial statement of Abitibi Power and Paper Co. is now in the course of preparation and will make its appearance within the next few weeks. This will be the first official intimation of the earning results for the final year under the receiver and manager and will be of particular interest because of the Hughes plan, which became effective since the end of 1945.

Earnings for 1945 will be a preliminary indication of the approximate time it will take for the funded debt to be reduced to the point where it will be permissible to pay dividends to preferred stockholders. These provisions call for a reduction in funded debt from $53 millions to $35 millions and the maintenance of $17½ millions in net working capital. All excess working eapital over $17½ millions is to be applied in the reduction of funded debt and the company's liquid position at the end of 1945 will be studied with a view to what funds will be available immediately for the retirement of new bonds after claims of the general creditors have been paid and expenses in connection with the receivership, reorganization, etc., have been met.

The way has been cleared for the exchange of old bonds of Abitibi into new bonds in the United States. Application of the company under the Trust Indenture Act of 1939 of the United States for the qualification of the indenture and mortgage securing the new bonds has been granted. Arrangements are being made with the City Bank and Farmers Trust Co., and American holders are being notified to make the exchange.

Forestry experts agree that Canadian forests can support an industry 3.6 times its present size—if areas now considered in inaccessible were opened up; if adequate measures of silviculture and fire protection were developed; if present annual rate of growth were doubled. The estimated growth rate for Canadian forests is approximately half the rate which Scandinavian countries have achieved. Solution of this is recognized as the key to the future of Canadian forestry operations, the key to the extent to which Canada can participate in a civilization where wood and wood products are again coming into their own. according to a writer in the Financial Post of this city.

The size of the possible postwar markets for Canadian wood products does not stop at the extent to which the United States will buy basic wood products such as pulpwood, wood pulp and newsprint. It goes beyond that, into the technology of new products made from wood.

Besides supplying the pulp, paper and lumber industries, Canadian forests now actively maintain some 800 wood-using industries for the manufacture of furniture, sash and doors, boxes and baskets, hardwood flooring, cooperage, woodenware, boat building, veneers, etc.

In 1943, the net value of forestry products amounted to $603 millions, ranking second to agriculture in the Canadian economy. This production was turned out by forest industries in which more than $1¼ billions are invested.

Forest areas of Canada were recently estimated by the Dominion Forest Service at 1,291,000 square miles, or 37% of the country's total land area. Of this, 813,110 square miles were classified as productive areas, while 435,000 square miles are classified as accessible.

Annual averages from 1934 through 1943, reveal that the maximum drain on Canadian forests was caused by lumber, fuelwood and pulpwood, in the order named, excluding timber destroyed by insects, diseases and forest fires. Were these latter considered, they would rank second to lumber.

The net value of 1943 production showed forestry at $602,828,000, with pulp and paper accounting for $164,-244,000; sawmills $91,714,000; operations in the woods $205,000,000 and other forest industries $141,870,000.

The net value of production, or value added by production, is one of the most significant criteria of the value of an industry to a country. In this, forestry ranked second to agriculture in value of primary and secondary production in Canada during the period under consideration.

The chief forestry asset is pulp and paper. Here $700 millions have been invested; and the significance of this figure becomes apparent when it is realized that this industry had more than twice the investment of any manufacturing industry in Canada at the outbreak of the war and during the war Canadian pulp and paper production was greatly expanded. Pulpwood production during the six war years was one-third greater than the average in the 1935-39 period. Newsprint production increased from 2.9 million tons in 1939 to 3.3 tons in 1945, and 1946 estimates run substantially higher.

Canada's role in pulpwood is equally as significant. Besides supplying large quantities to the United Kingdom during the war, Canada is now relied upon by the United States to make up, in part at least, the shortages resulting from the failure of the Scandinavian countries to resume their pre-war role of wood pulp exporters. Before the war Canada exported, on an average, 600,000 tons annually of wood pulp to the U. S. During the war that performance was bettered by nearly 100%, and in 1946 the U. S. is looking to Canadian sources for at least 1.2 million tons, or doublt the pre-war rate.

Market Forge Is Ready With New Load Cart

EVERETT, Mass.—The Market Forge Company has answered another materials handling problem with a newly designed load cart. The cart is particularly useful for handling coal, sand, ashes, cement, bricks, steel stampings and similar aggregates as the height of the truck from the floor makes it convenient for shoveling materials in or out. The unit is furnished with 16-inch diameter pneumatic rubber tires which make it ideal for traversing poor floors or for use in outdoor areas.

The drop side is designed in such a way that it may be locked in closed, half-open, or fully opened position. When in full-open position the Market Forge exclusively designed hinges eliminate the usual troublesome crevice between the drop side and the bottom of the truck.

Capacity of truck when handling such materials as coal and the like is approximately 1,000 pounds. Volume 22½ cu. ft. Inside dimensions are as follows: Length 60″; width 36″; depth 18″. Height of bottom above floor 18″. Overall height 36″. Wheels may be furnished in pneumatic, semi-steel or cushion rubber. All wheels are 16″ in diameter and are provided with Hyatt roller bearings with forced lubrication. Fifth wheel steering is furnished. Thread of wheel, center to center 25½″—wheel base of wheels 37″.

Designs may also be furnished with drop side on opposite side of truck or with two drop sides. Larger and smaller sizes are also available. This truck has unlimited uses as a general utility truck for all types of heavy haulage and will furnish the solution to many different handling problems. The trucks are carried in stock so that immediate delivery may usually be accomplished.

Downingtown Box Plant To Be Enlarged

DOWNINGTOWN, Pa.—The Downingtown Paper Box Company has made plans for the erection of a $40,000 building in an effort to double the production of its present plant on South Brandywine avenue. In addition to a new office wing, the principal new structure will be an ultra-modern printing room with the latest in lighting arrangements to permit the mixing of inks and other precision printing operations at night.

Company officials stated that a great number of their former employes are returning from the service, and rather than lay off those who had been trained to replace them, decided to expand facilities to permit them to operate two shifts and by so doing be able to employ twenty or thirty more people.

The new building is expected to be completed by August, after which time production will be increased gradually.

You can bleach Kraft, sulfite, soda, rag and flax pulp to high brightness with *absolute minimum* loss of fiber strength by using Mathieson C2 (Sodium Chlorite), the powerful, efficient oxidizing agent that's so easily and safely controlled.

C2 steps in at the point of greatest value—at the final stage of bleaching when it is essential to exert the greatest care in avoiding degradation of the cellulose. C2 won't damage cellulosic fiber . . . even under conditions of high temperature, low pH or high chemical concentration.

For higher profits in a market that will become more and more competitive, use C2—the modern way to brighter, stronger paper products. Write for information: The Mathieson Alkali Works (Inc.), 60 East 42nd Street, New York 17, N. Y.

Caustic Soda . . . Soda Ash Bicarbonate of Soda . . . Liquid Chlorine . . . Chlorine Dioxide Ammonia, Anhydrous & Aqua HTH Products . . . Fused Alkali Products . . . Synthetic Salt Cake . . . Dry Ice . . . Carbonic Gas . . . Sodium Chlorite Products . . . Sodium Methylate

Mathieson
CHEMICALS

Marathon to Offer 420,000 New Shares

WAUSAU, Wis.—A statement covering 420,000 shares of $6.25 par value common stock was filed by the Marathon Corporation, Wednesday, May 29, with the Securities and Exchange Commission. The stock will be underwritten and offered to the public by a nationwide group headed by the Lee Higginson Corporation. The offering will increase the company's common stock from 880,000 to 1,300,000 shares, as was authorized by the stockholders on February 21, 1946.

Proceeds will be used in retiring 3¾% sinking fund debentures due June 1, 1959, which were issued to finance the company's Canadian pulp mill development at Marathon, Ontario, which is in the final stage of construction. A portion of the proceeds of the financing also will be used to complete a building to house units of Marathon's facilities at Menasha, Wis.

The corporation intends to make application for listing the common stock on the New York Stock Exchange "as soon as it is deemed practicable and convenient," D. C. Everest, president, told the stockholders in announcing the registration.

At the same time he said net sales for the six months ended April 30, 1946, were $15,859,587, and net income after excess profits taxes was $1,400,920, as compared with a net of $1,360,437 reported for the entire fiscal year ended October 31, 1945.

After deducting preferred dividends, Mr. Everest said, the amount available for the six months for dividends on the 880,000 shares of common stock now outstanding was equivalent to $1.45 a share. A dividend of 20 cents per common share was paid on May 10, 1946. He added:

"It is the intention of the management to establish a quarterly dividend rate of not less than 20 cents per share on the 1,300,000 shares of common stock to be outstanding upon completion of this financing, so long as such action continues to be justified."

When the new Canadian pulp mill goes into operation, probably in August, Marathon Corporation will be entirely independent of outside sources of supply for high quality pulp, he said.

Operations of the corporation will be completely integrated, beginning with the cutting of timber and ending with production of protective food packaging, the corporation's principal product. The new mill will have a daily capacity of 300 tons of bleached sulphate pulp, it was reported.

Refunding Planned by Bowater's Newfoundland

MONTREAL—The Dominion Securities Corporation, of Monteral, in conjunction with the First Boston Corporation, has announced the sale without public offering of a new issue of $7,500,000 Bowater's Newfoundland Pulp and Paper Mills limited first mortgage 3½ percent bonds, series of 1946, due January 1, 1968, at 100 percent and accrued interest. The proceeds will be used to retire 5 percent and 4½ percent first mortgage bonds, due January 1, 1968. All the outstanding bonds will be redeemed on July 1 next, with accrued interest to that date, at 101½ percent of the principal sum.

N.A.M. Elects Collins to Board

SPRINGFIELD, Mass.—John M. Collins, a director of Package Machinery corporation, has been elected to the board of directors of the National Association of Manufacturers.

Eaton Will Pay Dividend On Common Stock

PITTSFIELD, Mass.—The Eaton Paper Corporation on June 15 will pay its first dividend on common stock since the firm succeeded Eaton, Crane & Pike in 1932, it was announced today. Holders of 38,074 shares of record June 1 will receive 50 cents per share. A considerable portion of the stock is held in Berkshire county.

The company also announced that it is calling for redemption of 10,604 shares of prior preferred stock at the call price of $25 and a block of ordinary preferred at the call price of $55, a total of $277,420.

The usual dividends of 7 per cent on the ordinary and 6 per cent on the prior preferred have been voted, payable July 1.

Gair Votes Preferred Dividend

Directors of Robert Gair Company, Inc., on May 28, 1946, declared a quarterly dividend of thirty cents per share in respect of the second quarter of the year 1946 on the preferred stock of the par value of $20 per share of the company, payable June 28, 1946, to stockholders of record at the close of business on June 14, 1946, without the closing of the transfer books.

Union Bag Votes 15 Cents

Directors of Union Bag & Paper Corporation last week declared a dividend of 15 cents per share on the capital stock of the company, payable June 24 to stockholders of record June 14.

FINANCIAL RECORD OF THE WEEK

New York Stock Exchange

High, Low and Last for Week Ending June 1, 1946

STOCKS

	High	Low	Last
A. P. W.	9	8⅝	9
Armstrong Cork Co.	65	60	63½
Celotex Corp.	35⅞	29¾	35⅜
Celotex Corp., pf.	21¼	20⅞	21⅛
Certain-Teed Products Corp.	25⅝	24⅛	24¼
Certain-Teed Products Corp., pf.	....	....	....
Champion Paper & Fibre Co.	67½	65¾	66½
Champion Paper & Fibre Co., pf.	....	....	....
Congoleum Nairn Co.	40⅝	38½	40¼
Container Corp. of America	52⅞	52⅛	52⅛
Continental-Diamond Fibre Co.	16⅜	15	15⅛
Crown-Zellerbach Co.	37¾	37	37¼
Crown-Zellerbach Co., pf.	108¾	108	108
Dixie Cup Co.	51½	49½	51⅛
Dixie Cup Co.—A	61	59½	61
Flintkote Co.	46¾	44¾	46
Flintkote Co., pf.	113¾	113	113¾
Robert Gair	11¼	10⅛	11
Robert Gair, pf.	20⅞	20⅜	20⅞
International Paper Co.	50⅛	49⅛	49¼
International Paper Co., pf.	125	123	123¾
Johns-Manville Corp.	160	155½	160
Johns-Manville Corp., pf.	143⅝	141	143⅝
Kimberly-Clark Corp.	70	69	70
Mac Andrews & Forbes	42⅝	41	42⅝
Mac Andrews & Forbes, pf.	159½	159½	159½
Masonite Corp.	69	67¼	69
Mead Corp.	29	27¼	28¼
Mead Corp., pf. A—6%	106	105⅞	106
Mead Corp., pf. B 5½%	106	106	106
National Container Corp.	37	34⅞	36¼
Paraffine Companies, Inc.	85	83	85
Paraffine Companies, Inc., pf.	109½	109⅛	109⅛
Rayonier, Inc.	31⅝	30¾	31
Rayonier, Inc., pf.	38⅜	38	38
Ruberoid Co.	65	62⅛	65
Scott Paper Co.	57	55½	57
Scott Paper Co., pf.	108½	107½	108½
Sutherland Paper Co.	52½	50	52½
Union Bag & Paper Corp.	39	35¾	37½
United Paperboard Co.	13⅜	12¾	13¼
U. S. Gypsum Co.	132	129½	132
U. S. Gypsum Co., pf.	....	....	....
West Virginia Pulp & Paper Co.	51	47¼	51
West Virginia Pulp & Paper Co., pf.	115	114¼	115

BONDS

Abitibi Pulp & Paper Co. 5s '53	110⅞	109⅜	110⅞
Celotex Corp. 3¾s '55	....	....	....
Certain-Teed Products Corp. 5½s '53	....	....	....
Champion Paper & Fibre Co. 3s '65	....	....	....
International Paper Co. 5s '47	101¾	101¾	101¾
Mead Corp. 3½s '53	....	....	....

New York Curb Exchange

High, Low and Last for Week Ending June 1, 1946

STOCKS

	High	Low	Last
Great Northern Paper Co.	42	41	41
Hummel-Ross Fibre Corp.	19¾	19¼	19⅜
St. Regis Paper Co.	15⅜	14	15
St. Regis Paper Co., pf.	....	....	....
Taggart Corp.	12⅜	10⅞	12¼

BONDS

American Writing Paper Co. 6s '61	....	....	....

Berkshire Plants Grant Pay Hike

PITTSFIELD, Mass, May 28 — Increases of 8½ cents an hour were granted to approximately 1500 employes of three Central Berkshire paper manufacturing plants, it was announced today. The firms are the Eaton Paper Corporation of this city and the Crane & Company and Byron Weston Company, both of Dalton.

George P. Clayson, president of the Eaton corporation, announced that its 592 employes will receive revised rates, based on an analysis of hourly and piece rates. The increase will go into effect at once, he said. Last July, the company announced a five percent wage increase adjustment, which was retroactive to February 1, 1945.

At Dalton, Bruce Crane, speaking for both Crane & Company and the Byron Weston Company, said the increases will become effective Friday. He further stated that hourly rated employes will have been raised 18 cents since August 1945. At that time, a three-cent an hour increase became effective, and in December 1945, a general raise of six and one half cents was granted.

Thomas Resigns at Elkhart

ELKHART, Ind.—B. M. Thomas, who has been vice-president and plant manager of the American Coating Mills, Inc., for the past six years, has resigned from the company to take effect in the near future. His future plans will be announced shortly.

Virginia Plants Resume After Fuel Shortage

LYNCHBURG, Va. — The Mead Corporation's Lynchburg plant resumed operations last week following a two-week shutdown because of coal and rail strikes. Officials said some 750 workers were back on the their jobs.

Meanwhile, the plant of Bedford Pulp and Paper Company at Big Island, which was to have closed indefinitely after completing its work Saturday, May 25, was able to resume operations the following Monday.

W. H. Brydges, vice-president and general manager, said the unit is on a seven-day schedule but was unable to work Sunday because of lack of raw material.

Maine Seaboard Installs Two Jones Jordans

BUCKSPORT, Me.—Converting its facilities for the manufacture of book paper, the Maine Seaboard Paper Company has installed two Jones Majestic Refiner Type Jordans on one machine, and will equip the second machine with two more units during the summer. These refiners are built by E. D. Jones & Sons Company, Pittsfield, Mass.

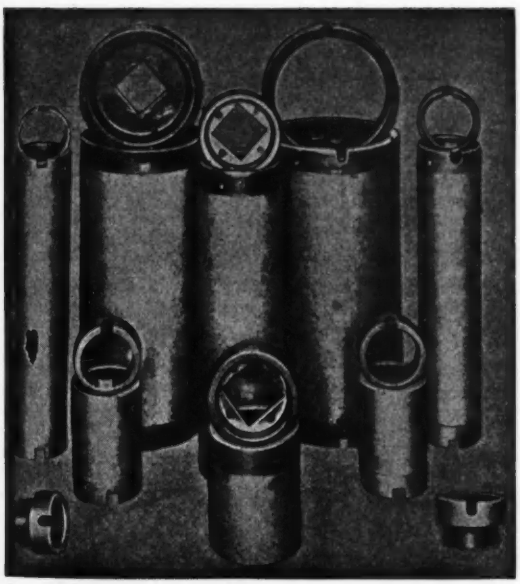
Waxed Paper Group To Meet June 27

ROCKFORD, Ill. — A special meeting of the waxed paper industry will be held June 27 and 28 at French Lick, Indiana, to discuss recent OPA price adjustments and regulations it was announced by A. H. Noelke, secretary-treasurer of the Waxed Paper Institute. V. H. Wilshire, president of Specialty Papers Company, Dayton, Ohio, will preside at the meeting.

R. C. McCaskey, vice-president, Minerva Wax Paper Company, Cleveland, Ohio, will discuss current OPA decisions, and the possibility of further increased raw paper stock, which would directly affect all waxed paper converters. Mr. McCaskey is chairman of the OPA Waxed Paper Industry Advisory Committee.

The industry-wide promotional program, initiated in 1945, will be reviewed in detail by R. A. Nash, manager of Bakery Division of Marathon Corporation of Menasha, Wisconsin, and Chairman of the Institute's National Merchandising Program.

Other business on the agenda includes a review of the Institute's statistical reporting system by A. F. Kletzien, Commercial Research Department, Marathon Corporation, Menasha, Wisconsin; and a progress report on the Institute's Industrial Relations Program by Peter J. Massey of H. P. Smith Paper Company, Chicago.



ELIXMAN

CAPS — Straight wound paper cores made in sizes from 2" to 10" inside diameter with any thickness wall required.

Long draw protected slot caps of heavy gauge steel in all standard sizes.

Heavy duty caps with reenforced square hole. This patented feature of reenforcement gives added strength and durability.

CORES

Samples of caps or cores will be gladly submitted

ELIXMAN PAPER CORE COMPANY, INC.
CORINTH, N. Y.

Francis H. Eldridge Heads Huyck Firm

ALBANY, N. Y.—Francis H. Eldridge has been elected president of F. C. Huyck & Sons, to fill the vacancy caused by the death on May 12 of Woolsey W. Wood. The new president has been vice-president and general manager since 1938. He is a grandson of Francis Conkling Huyck, founder of the business, and a nephew of Edmund, Frank and John Huyck, all sons of the founder, who were associated with the company through their entire lifetimes. Mr. Eldridge came to Albany in 1928 as personal secretary to Edmund N. Huyck. Shortly thereafter he joined the business, first in the capacity of credit manager. Later he became assistant treasurer, in which capacity he served until 1938, when he was elected vice-president and general manager.

James L. Braman, whose association with the company dates back nearly thirty-four years, continues as first vice-president and treasurer. Harry Eldridge becomes second vice-president and secretary. He has served with the company for over twenty years, more recently in the capacity of secretary and assistant treasurer. Charles V. Spencer, controller of the company, becomes assistant to the president and controller.

Holdon M. Ashby, formerly president, continues as chairman of the board, a position to which he succeeded upon the death of Frank Huyck in 1938.

The vacancy on the board of directors, due to Mr. Wood's death, has been filled by the election of W. H. A. Short, managing director of Kenwood Mills Ltd., Arnprior, Canada. Mr. Short is a citizen of Canada and has been with the Canadian plant since 1919. His selection as a director continues the close relationship of the Canadian company to the parent corporation.

FRANCIS H. ELDRIDGE
Elected to Head Huyck Firm

Package Machinery Airships

SPRINGFIELD, Mass., May 27—Package Machinery company will inaugurate its first air transportation venture shortly when three packing machines, weighing 1800 pounds each, will be flown to the Bridgford company of Ontario, Canada, by Bruning Aviation, Inc.

New Light Weight Pallets Can Carry 4,000 Pounds

Low cost "X-P" Expendable Pallets of double corrugated board tops supported on square or round wood blocks offer new savings in manufacturers' shippings costs. The cost of these 60% lighter pallets is so low that they may be discarded after a single trip. Entire top and block ends are dipped in water-resistant adhesive which seals off moisture from the load. Adapted to fork lift trucks, 4,000 pound loads have been carried on the "X-P" Pallet without failure. Tests further show that this pallet will survive a number of trips without appreciable damage under normal conditions of shipment by rail or truck.

Maximum load stowage is attained in the standard 42x48 inch size, since multiples of these dimensions nearly equal the widths of truck and box car bodies. Other sizes and double faced pallets are available with block spacings to suit users' lift equipment. Over 1,300 empty pallets weighing approximately 30,000 pounds can be nested in a 50 foot box car using a lift truck for handling. Additional information regarding "X-P" Pallets, patent pending, may be obtained from the manufacturers Techtmann Industries, 714 W. Wisconsin Ave., Milwaukee 1, Wisconsin.

Ansul Bulletins Describe Use of Sulphur Dioxide

Bleaching groundwood pulp with peroxide appears to be one of the most important postwar developments in the pulp and paper industry. The resulting improved brightness eliminates many of the limitations inherent in unbleached groundwood pulp. Accordingly, full advantage may now be taken of the desirable qualities of that type of pulp. In keeping pace with the wide interest that has developed throughout the industry, now that chemicals are available to extend this process, the Ansul Chemical Company recently issued a bulletin on "The Use of Sulphur Dioxide in Groundwood Pulp Bleaching".

Ansul has also issued two companion bulletins entitled, "Use of Sulphur Dioxide for Acidulation of Bleached Kraft Pulp," and "The Use of Liquid Sulphur Dioxide in Fortifying Sulphite Cooking Liquors." All three of these bulletins may be obtaind by writing to the Ansul technical staff, Ansul Chemical Company at Marinette, Wisconsin.

15-Year Workers at duPont Get Extra Week of Vacation

WESTFIELD, Mass.—Employes of the du Pont Company plant in Russell who have 15 years or more of service with the company will receive an additional week's vacation each year at full pay under the terms of a new plan announced today by M. J. Vittengl, plant manager.

A two-week holiday with pay has been a feature of the du Pont employe plan for many years. The new program will extend this to three weeks, beginning the year the employe reaches his 15th anniversary with the firm.

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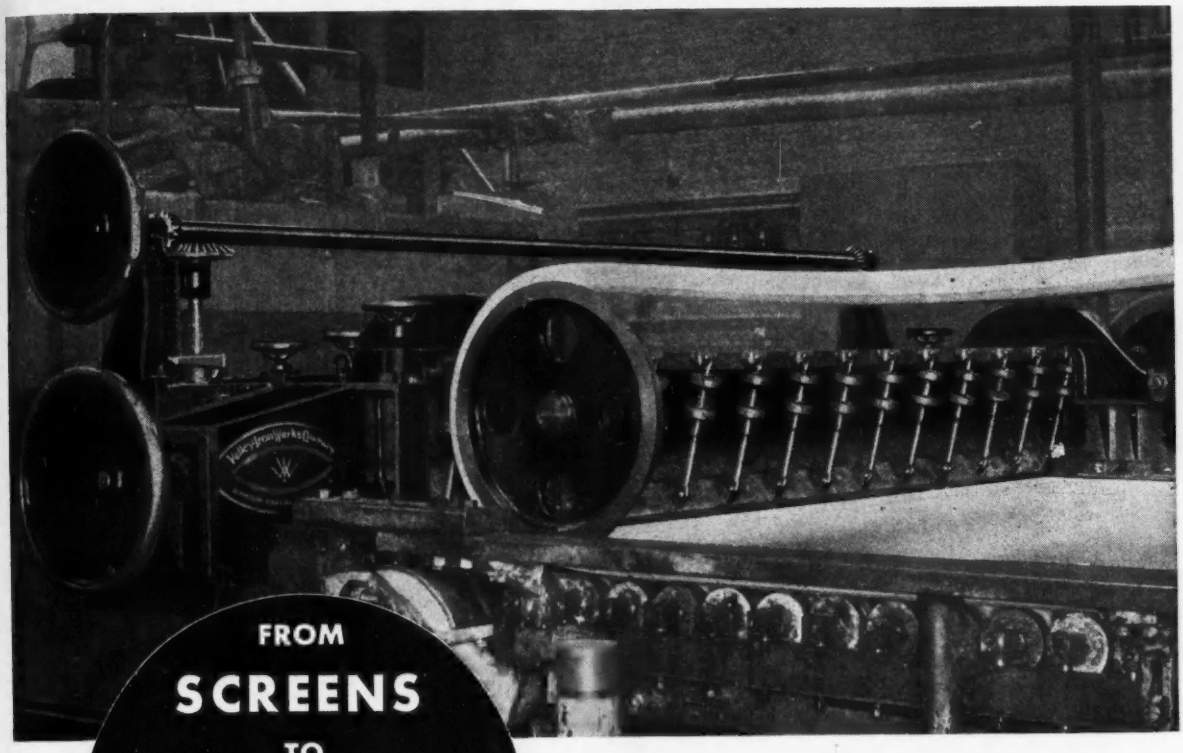

FROM
SCREENS
TO
BREAST ROLL
BY
VALLEY

A Special Design for Rag and Heavyweights

This little inlet-headbox combines the best in old established paper-making experience with modern VALLEY know-how.

- **Deckles in while running.**
- **Saves valuable wire length.**

VALLEY has an inlet for *Your* Paper Machine.

VALLEY IRON WORKS, CO.,

Appleton, Wisconsin

Slices and Head Boxes • Screw Presses • Micro-Mist Spray Dampeners • Laboratory Equipment
Pulp Washing Systems • High-Speed Beaters • Breaker Beaters • Vortex Beaters • Plug Valves
Flat and Rotary Screens • Thickeners • Deckers • Paper Markers • Roll-Headers

Rogers Offers Samples On Limited Scale

MANCHESTER, Conn. — Rogers corporation this week offered free production samples of sheets of new fibrous and plastic materials from as little as 25 pounds of component ingredients. A specially developed experimental machine, which duplicates the output of full-scale equipment, makes this possible.

The Rogers experimental machine retains full diameter and other vertical measurements of standard equipment. Any material adapted to the wet machine process can be made into fibrous or plastic sheets by means of the experimental machine. The preferable thickness range is .031 inch, though thicknesses from .007 to .150 inch may be produced.

This has been successfully accomplished with cellulose, leather, asphalt, glass fibres, asbestos, lignin, rubber, phenolics, ureas, cork, vinsol, ground wood, flax, and others that were considered waste materials.

Rogers corporation, a 114-year-old concern, produces fibrous and plastic boards by a special beater process which includes the wet laminating of many thin plies, until they are built up into sheets of any desired thickness. The plies are laminated under high pressure without the use of adhesives or chemicals, then dried free from any tension. Fibres stay interlocked after fabrication, providing extra strength to the finished parts.

Trees for Tomorrow Prizes Go to Five Winners

MERRILL, Wis. — Five Wisconsin River Valley youths have been named as winners of the 1946 Trees for Tomorrow, Inc., forestry scholarship awards. They are Richard Myshak, Rhinelander; Earling Zelb, Merrill; William Markstrum, Wausau; Al Mahenski, Stevens Point, and Robert Karloske, Wisconsin Rapids. Five $500 awards are given annually by the Wisconsin valley organization, composed of paper mill executives with reforestation as its object, to youths from 29 Wisconsin valley high schools who qualify under a point system. Winners may specialize in any phase of forestry at any of the 27 accredited forestry schools in the country.

ASF Cites Maj. McDonald

The Army Services Forces Citation for the Army Commendation Ribbon has been awarded to Major John J. McDonald, assistant manager, Pulp Sales Division, Brown Company, 500 Fifth Avenue, New York. The citation was awarded in recognition of meritorious service performed while Major McDonald was attached to the Army Service Forces Chemical Warfare Center at Edgewood Arsenal, Maryland.

Major McDonald entered on active duty with the Chemical Warfare Service, November 20, 1942. He served as Contracting Officer, Chief of Administration Division and Chief of Property Division, Arsenal Operations, during his thirty-five months of duty at Edgewood Arsenal, Maryland.

Krock Takes Over Norwood Plant

NORTHAMPTON, Mass.—Creditors of the Norwood Engineering Co. at Florence, makers of calendar machines for use in paper machine manufacture, late last week agreed to the sale of the company to Edward Krock of Worcester, who has taken over operation. The sale was held following the presentation of an assignment for the benefit of creditors.

Under the terms of the agreement, Krock pays $10,000 and assumes obligations totaling $126,000. These include $91,000 in first and second mortgages, $3,100 for pay rolls and $30,000 on material in process. The buyer has also agreed to proceed with the present contracts, for which $118,000 has already been advanced.

Norwood has been in existence in Florence for half a century. During the war it had government contracts but since the termination of hostilities had been reported in somewhat shaky financial condition.

Standen Is Appointed By Ladish Drop Forge

CUDAHY, Wis.— The Ladish Drop Forge Company has named C. R. Standen as advertising manager.

Prior to the war, Mr. Standen was associated with the RCA Victor Division of Radio Corporation of America in Camden, N. J., and joins the Ladish organization after three years' Army service, during which he served as a 1st Lieutenant in the Ordnance Department, in both the American and European theatres.

Mr. Standen, a graduate of Ohio University, Athens, Ohio, is married and has one four-year-old son, Craig.

Quebec Mills Raise Pay

Employees of four pulp and paper companies in the Quebec district will receive wage increases of 10 cents per hour, retroactive to May 1, as a result of a collective labor agreement with the Quebec Federated Council of Trades and Labor (A.F. of L.) The companies affected are Anglo-Canadian Pulp and Paper Company, St. Anne Paper Company, St. Lawrence Paper Company, and the Canadian International Paper Company.

Plants Cooperate for Safety

SPRINGFIELD, Mass. — Paper manufacturing plants in this area are cooperating in a drive to raise $22,187 to sponsor a community safety program, the Hampden County Safety Council reported this week.

Westfield River Ex-Soldier Welcomes His War Bride

RUSSELL, Mass.—Years of uncertainty, suffering and deprivation ended on a New York dock recently when the former Luise Hrybinika of Poland wes reunited with her husband, Louis Garlo, Jr., of the Westfield River Paper Company.

Garlo, who served a year and a half overseas as a sergeant in the army, first met his wife when he was assigned to military police duty at a displaced persons camp at Heilbron, Germany. At the time, Mrs. Garlo was living at the camp with her mother and two sisters.

Their romance ended in marriage on November 23, 1945, and they were separated shortly thereafter when he was ordered home to the United States and discharged. He returned to his job with the paper company and was surprised when the Red Cross informed him she was en route across the Atlantic. He thought she would be unable to come to this country until fall.

Fox River Mills Increase Pay Rate Five Cents

APPLETON, Wis. — A general wage increase of five cents per hour, retroactive to May 20, for about 1,000 hourly paid workers in four Fox River Valley paper mills, was announced May 28 by Emil Noren, representing the International Brotherhood of Papermakers (AFL).

The mills are the Fox River Paper Corporation, Appleton; Whiting Plover Paper Company, Stevens Point; Neenah Paper Company, Neenah, and Gilbert Paper Company, Menasha.

Officials of the four companies, the four union committees and Mr. Noren conferred to complete the wage increase negotiations. The increase comes during the life of the contract which will expire October 1.

Chemical Paper Visits Ball Game

HOLYOKE, Mass. — Chemical Paper Company officials were hosts to the superintendents of the concern at the Yankee-Red Sox game in Boston Saturday. Attending were Raymond Winkler, Raymond Moffett, Ralph Higginbotham, James Aitchison, Henry Inglis, Clifford Yarber, Frank Cook, Frank Morrill and Cornelius Stapley.

Stephen S. Van Loan

WEST SPRINGFIELD, Mass.—Stephen S. Van Loan, 84, town constable and a retired employe of the Southworth Paper Company died at the home of his daughter, Mrs. Mattie M. Dennis, recently.

Isabelle Fleming

DALTON, Mass., June 1—Mrs. Isabelle Fleming, 82, for a half century an employe of Crane & Company, died suddenly at her home.

Industry is Vulnerable Tinker Reminds Salesmen

(Continued from page 7)

"who ought to be told now where the fault really lies."

Answering questions concerning the public relations program of the industry, Mr. Tinker advised his audience that a complete outline of a most ambitious program was now being mailed to all the divisions of the trade and he urged the Salesmens Association to give it full support and encouragement "particularly since they were fathers of the idea."

The head of APPA opened his remarks by citing figures to show why "there was more paper in the country than ever before." He added that the future of this production was "impossible to predict because of outside factors" stressing the one fact that of the nearly 100 pulp mills depending upon coal for fuel twenty two had only a week's supply, twenty four two week's supply and twenty four three week's supply.

Perhaps the biggest warning offered by the APPA speaker over a danger of return to a period of "low profits" came from a stressing of the prior overcapacity of America's pulp industry. "Up to 1939," he said, "we had surplusses, the habit of producing to over capacity." In 1939 we produced 13½ million tons of paper and board. In 1945 the figure reached 17,300,000 tons and it will reach 19,000,000 tons in 1946. In 1939 we produced 2,435,000 tons of printing papers (as compared to newsprint) compared to 3,400,000 tons in 1946.

He warned that the industry was preparing for even greater capacity to produce, stressing the fact that already blue printed were facilities for production of 600,000 tons of additional print papers tor 1946 and stating that "1947 would certainly show a lot more."

In answer to queries, Mr. Tinker said he did not have figures for paper consumption in this country but he did say that production was staying at the 103 figure and that "inventories are building up all along the line with mill inventories included although still below a safe tonnage basis."

"Can we have five years of an enjoyable sellers market," Mr. Tinker asked in answer to questions. "I am dubious about it. The loan policies I have described will work against it. The paper industry is not something to conjure with—not the answer to the Wall Street dream. Its potentialities are somewhat of an illusion. I am bearish because of the current trend toward over-expansion of our productive capacities."

Included among the many guests attending the May 27 luncheon at the Hotel Sherman, and seated at the speaker's table, were William Shea, president of Bradner, Smith & Company; Noble Gillett, president Chicago Paper Company, John Diggs of Mosiness and Ed Edwards of the Howard Paper Company, vice-president of the western division, who introduced the speaker, Mr. Tinker.

Mr. Tinker also spoke in Chicago on May 26 before the annual meeting of the National Purchasing Agents Association, indicating to the "CAP-EYES" that he was going to stress to this group the fact that paper shortages and the general confusion were not the fault of the paper manufacturers, wholesalers and salesmen "but the fault of those who were attempting to regiment all business."

Panelyte Signs Contract With AFL at Trenton

TRENTON, N. J.—The Panelyte division of St. Regis Paper Company has signed a 1946-47 labor relations contract with a substantial wage advance for the 1,400 hourly employees of the plant, which is an important part of Trenton industry. They are members of the International Chemical Workers Union No. 155, AFL, and the company said the new contract "more firmly establishes the continuation of 15 years of harmonious labor relations in the Panelyte plant," adding that "it assures both a better future for the employees and a continuous flow of plastics to the company's customers." The contract, the company said, is considered a model from the standpoint of both labor and management, and is consistent with the St. Regis Company's labor policy in its other plants.

The advance in wage scales, effective on the signing of the new contract, together with an increase put into effect last December, brings the average wage advance for the Panelyte plant employees up to the national pattern of 18½ cents per hour.

The Trenton plant has been unionized since 1931, when Panelyte had 90 employees, and during the 15 years since there have been no strikes or work stoppages of any kind. During the war Panelyte converted to 100 per cent war production, and the employees were three times awarded the Army-Navy E for their manufacture of airplane propellers, airplane motor baffles, and other products.

Gulf to Handle H&T Line

NEW ORLEANS—The Gulf Engineering Company, 916-30 South Peters Street, has been appointed to handle the account of Hungerford and Terry, Incorporated, Clayton, New Jersey. The company will handle Hungerford and Terry, Incorporated entire line of water treating equipment including water filtration plants, chemical and Invers and Zeolite water softening plants, condensate de-oiling filters, caustic soda filters, Edwards exchanger de-ionizing machines, coagulators, chemical feed machines and Zeolites.

Louisville's Anniversary A Tribute to Smith

LOUISVILLE, Ky. — The Louisville Paper Company, which last month celebrated its fiftieth anniversary in the paper business, has had the same president during the entire time. Thomas Floyd Smith, Sr., started the Louisville Paper Company in 1911 in a small way and it was well on its way when the entire place was gutted by fire on April 26, 1912.

The company bought the present location at Thirteenth and Maple Streets, which has a storage capacity of 140,000 square feet and a private railroad switch of fifteen-car capacity.

Mr. Smith has not only the ability to get business but has surrounded himself with capable people. It is an old saying in the trade that if a man gets his training at the Louisville Paper Company he is capable of holding a position anywhere.

The company has a branch warehouse in Memphis, and carries a stock in Knoxville and Evansville. It has sales offices in a number of Kentucky, Indiana and Tennessee towns serving through traveling salesmen, many customers in Kentucky, Tennessee, Indiana, Virginia, Mississippi and Arkansas.

Mr. Smith was president of the Louisville Board of Trade for three terms. He was instrumental in organizing The National Paper Trade Association, serving as its unpaid secretary for several years and as its president during 1916 and 1917. He was instrumental in building the Louisville Memorial Auditorium, which was erected in honor of the men and women who died in World War I and he is still chairman of the committee.

Wyandotte Adds Chemist To New York Sales Force

John Bahlburg, Jr., has joined the New York sales force of the Michigan Alkali Division of Wyandotte Chemicals Corporation. His duties will include the development of sales contacts for the organic program of the company in the eastern part of the country.

Mr. Bahlburg is a graduate of the Polytechnic Institute of Brooklyn. He was recently released with the rank of Major by the Army Air Force Photographic Mapping Service after two years in the China-India operations. In 1941 he enlisted in the medical corps, became a staff sergeant, and in 1942 received an air force commission. Previous to the war he was a member of the technical sales force of an engineering supply firm, and for four years was organic chemist with two well known manufacturing firms. Mr. Bahlburg, after a period of training at the Wyandotte Office, will work under the direction of George Dunning, Director of Eastern Sales of Michigan Alkali Division of Wyandotte Chemicals.

PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

W. L. Cook, Editor

Small Assurance

Such comforts and causes for optimism as might have been wrapped last week in news that the Civilian Production Administration contemplates removal of all controls over the paper industry are tempered with more than a grain of concern by those who have to face the customer. The Administrator, after citing increased production records for the first two quarters of the year, is confident, he says, that "if this production rate is maintained the balance of the year we can expect the supply and demand relationships to become normal." Hasten the day!

For with a steady pressure from all sides for more paper the mill office and general merchant have more than average demand from a few specific and clamorous types of customer, and in the diplomatic handling of these people more than a simple matter of future happy relationships is involved. Only a few weeks ago a substantial section of the paper industry's customers were discussing appeals to Washington for some relief. Only last week, after he had talked to the paper salesmen at luncheon in Chicago, E. W. Tinker went before the purchasing agents assembled in the same city to pour oil on the turbulent waters. It is good that John D. Small, CPA Administrator can see within the year a normal relationship between supply and demand.

For there are factors in the demand which are not normal. The makers of new products that involve pulp or paper, and thereby have created additional future outlets for the mills, now want to go ahead. The users of paper who have lost their sources of supply because these sources have been sold to other large users, are still seeking relief. These groups are augmented by returning veterans who want to get back into business that they left, by converters who have lost their sources as the supplying mills have put in converting operations, by customers whose growth was halted during the war and now find their way clear to expand.

In all, this selection of unhappy would-be customers presents a good deal more than a simply severe test of ability at good-will cultivation, and diplomatic ducking. In it there is the germ of a vast discontent, and so long as the congressman from the complainer's district has ears he is apt to hear the whole story. Then, who knows, under pressure which can be relieved only through action, inquiries can be started and bills introduced. The machinery still exists for controls; still is working, indeed, in many other industries.

Those who have guided the affairs of the pulp and paper industry so far through the mazes of reconversion deserve the heartfelt thanks of the rank and file. Working intensely, but quietly and continuously, they have turned impatience into cooperative understanding among large customer groups. It is devoutly to be hoped that Administrator Small is correct, and that future developments will not make it necessary for him to incur a "substantial increase in CPA personnel and heavy administrative expense."

But the industry is not far enough removed from disturbing and disturbed conditions to permit itself any great degree of complacency. Too many would-be customers are still too far short of the paper that they require to keep their own plants busy and their own forces at full employment, and are willing to offer too many suggestions to render the present situation any cause for congratulation. The time is rather one for sober understanding and for constant vigilance. The unpleasant part about being a bottleneck is that there is too great a temptation for those who would enlarge it to break it altogether. When a bottleneck is cracked it's apt to be shattered.

Another Index Needed

Respectfully referred to the gentlemen of the slide rule is an inquiry that came in over the telephone the other day—"How great is the demand for paper?" The answer was "Plenty, brother." But the question was provocative. Accurate figures are available each week to measure the production of the mills, and among those who read these figures it is no secret that the "shortage" is not so much a matter of production short-comings as it is of demand excesses. Hence the search for a yardstick that will eliminate duplications of inquiry, discount buyer's optimism in a seller's market, and provide a factual figure for the man who wants to know.

Calendar of Coming Events

June 6-8, 1946—Technical Section, Canadian Pulp and Paper Association, Royal Edward Hotel, Port Arthur, Ont.

June 14-15, 1946—TAPPI Empire State Section, Thousand Islands Country Club, Alexandria Bay, N. Y.

June 17-20, 1946—American Pulp and Paper Mill Superintendents Association, Annual Convention, Poland Springs, Me.

June 28-29, 1946—TAPPI Maine-New Hampshire Section, Rangley Lakes House, Rangley Lakes, Maine.

September 26-28, 1946—TAPPI General Fall Meeting, Hotel Statler, Detroit, Mich.

October 2-4, 1946—TAPPI Engineering Conference, Pfister Hotel, Milwaukee, Wis.

November 4-6, 1946—National Paper Trade Association, Fall Convention, Palmer House, Chicago, Ill.

TAPPI Notes

K. A. Hultan, consulting engineer, formerly of Chicago, Ill., is now located at 4939 Beach Drive, Seattle 6, Wash.

Ivar Wallquist, managing director of Walquist & Company, Karlstad, Sweden, manufacturers of pulp and paper mill machinery, is visiting in the United States.

An Engineering Conference will be sponsored by the Technical Association of the Pulp and Paper Industry at the Pfister Hotel, Milwaukee, Wisc., on October 2-4, 1946.

A general fall meeting of the Technical Association will be held at the Statler Hotel, Detroit, Mich., on September 26-28, 1946.

Reservations for accomodations at both the Pfister and Statler Hotels should be sent to R. G. Macdonald, Secretary, Technical Association of the Pulp and Paper Industry, 122 East 42nd Street, New York 17, N. Y. These hotels will not accept direct reservations for the dates mentioned but reservations may be made direct with other hotels in Milwaukee and Detroit.

Henry Reeves, Jr., Paper Makers Chemical Department, of the Hercules Powder Co., Wilmington, Del., has been transferred to Kalamazoo, Mich.

The following are visiting paper mills in the United States at the present time: Messrs. Jacques Crouau, Andre Berges and Guy Frank of Papeteries de Gascogne, Mimizan, France; Messrs. C. F. D. Beuker, J. M. De Muinck Keizer and T. F. Hubrecht, of Van Gelder Zonen, Amsterdam, Holland; Prof. Ir. E. L. Selleger, Director of Papierfabriek "Gelderland" and Chairman of the Dutch Papermakers' Association, Nijmegen, Holland; Mr. Leon Lhoest, Managing Director of Koninklijke Nederlandsche Papierfabriek, Weert (Meerssen) Holland, and Mr. Hans Hess, Biberist Paper Mill, Biberist, Switzerland.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1946		Corresponding Weeks—1945	
April 20	102.5	April 21	90.7
April 27	100.6	April 28	87.0
May 4	107.3	May 5	90.7
May 11	102.8	May 12	85.4
May 18	98.3	May 19	92.5
May 25	*99.2*	May 26	92.0

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1945	86.7	89.4	90.2	88.1	89.8	91.2	80.8	88.6	90.2	95.9	95.5	91.0	89.7
1946	94.7	98.4	104.4	*102.7*									

COMPARATIVE YEARLY SUMMARIES

	1939	1940	1941	1942	1943	1944	1945	1946
Year to Date	80.1	86.3	92.4	101.3	89.2	88.4	88.7	*100.0*
Year Average	83.4	85.6	97.4	90.4	87.8	88.1	89.7	

*Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Current Weeks—1946		Corresponding Weeks—1945	
April 20	101	April 21	98
April 27	95	April 28	99
May 4	101	May 5	97
May 11	*97*	May 12	94
May 18	92	May 19	97
May 25	*93*	May 26	97

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1945	91	95	97	97	96	96	86	90	91	97	95	85	93
1946	90	97	100	*99*									

†Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

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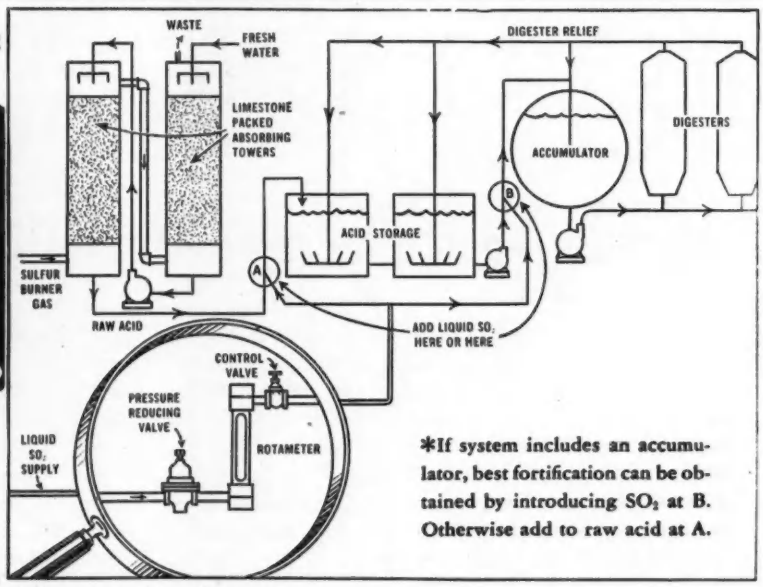

*If system includes an accumulator, best fortification can be obtained by introducing SO_2 at B. Otherwise add to raw acid at A.

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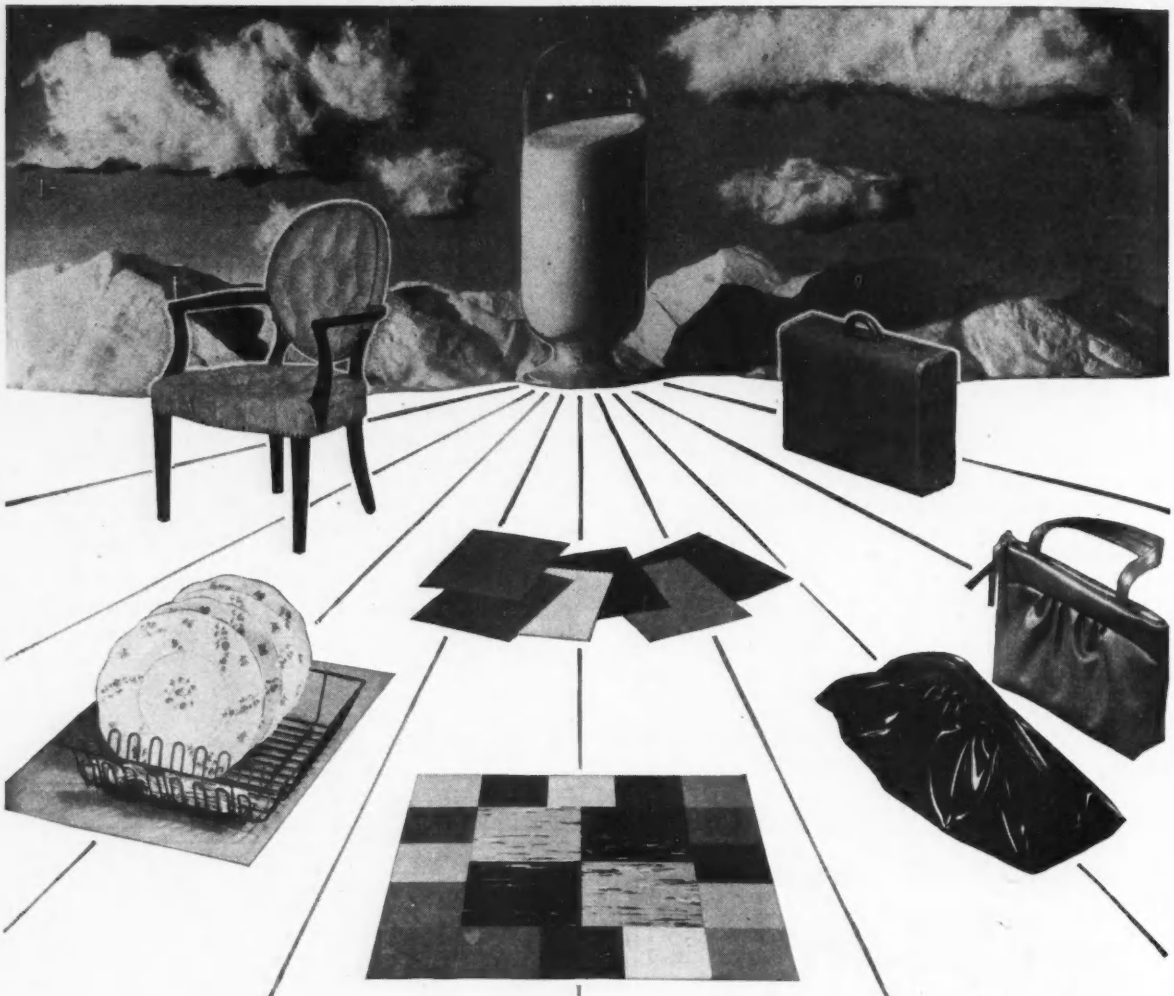

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Polyvinyl Materials

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122 E. 42nd St., New York 17, N. Y.
Edited by R. G. Macdonald, Secretary

A Few Predominant Problems in Acid Pulping and Their Sources*

By Gust C. E. Johanson[1]

Abstract

The object of this paper is to emphasize the fact that the wood and wood-yard are the main sources of acid pulping problems and that clean, high grade pulps can be produced only after proper consideration of the factors involved. The wood must be as uniform as possible, sound, and clean before entering the digester.

In speaking of problems in sulphite pulping, only those of primary and general interest to all mills will be considered. Individual problems must be solved individually as very often they are dependent upon local conditions.

As common problems to all, uniformity, strength, and cleanliness are at the top of the list, but which is the most important may be debatable as one mill may have better facilities with which to cope with one problem or the other. However, the assumption should not be made that the peak of perfection in any of the problems mentioned has been reached.

There is no reliable test to indicate the effect of change in wood on pulp quality but it is well known that the most important variable affecting pulp quality is wood. In order to rate or grade any product, a standard is required. As such the product of the European pulp producers is used. It is not reasonable to state that the domestic producers, in general, make as good pulp as that manufactured abroad, instead, the fact that their product is superior should be admitted and then efforts should be made to find out why and make the necessary improvements. A short time ago the author spoke to a consumer who before the war used practically all Scandinavian pulp and, after pointing out to him the fact that since he now had learned to use domestic pulp and had altered his formulas accordingly, (he was a board manufacturer), asked why not continue to use the same domestic source after the war? He stated that if he did he would go broke, not because of difference in price between foreign and domestic pulp, but because of the difference in quality. He then explained that he would have to use much more of the domestic sulphite than the Scandinavian in his mixture with cheaper grades of groundwood, waste paper, etc. in order to make the quality board desired.

Wood and Wood-yard Practices

Now to find the answer why the better grades of Scandinavian pulp are superior to the domestic products. First, it should be made clear that it is not that the skill of their engineers or operators is better but rather it is a combination of nature and economic necessity. The nature of the soil and the climate produces a wood of first quality. Specifically in Sweden the value in the forests was realized early and was made a cornerstone in the economic life of the country with due respect given to research and utilization. Sweden is dependent on exports of her valuable forest products while in this country the pulp industry is a relatively small one. The government in Sweden intervened in order to preserve and make the forests yield a perpetual income. Reforestation is not new over there but has been carried on for years under the supervision of experts. The owners of the forests, be they government, company owned, or privately owned farm lands, are governed by law when and where to cut as well as being required to keep the forests clean from underbrush and fire hazards. The result is a better raw material for making pulp.

The wood is graded as to size, kind of wood, and in many instances, places of growth—high land or low land, etc., either before it gets to the mill or when it arrives. Then in most cases it is piled in tiers and seasoned until ready to be made into pulp. Is it any wonder if the ultimate results are uniformity and strength?

You make a short survey of the domestic method of handling the wood. It may differ some in different localities but the overall picture is about the same. The wood as it comes into the mill by box car, truck, boat or floating down the river, is piled in most instances regardless of size into one or several big cone-shaped piles depending on local conditions. The different species of spruce, balsam, or fir may or may not be separated. The hemlock because of its very different characteristics is usually kept separate, at least until it reaches the digesters.

These big piles of pulpwood are seasoned anywhere from 3 months to 3 years and the condition of the core when ready to be used is not always as sound as is desirable.

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* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 25-28, 1946.

[1] Ass't. Supt., Sulphite Div., Penobscot Chemical Fibre Co., Great Works, Me.

New Manufacturing Equipment

In spite of this handicap of a poorer grade of raw material to start with, great progress has been made by the engineers and operators in making the best possible pulp with what is had. Big blending tanks together with digester controls of various kinds, hot acid system and forced circulation, are doing wonders in eliminating the difference in wood mixture. And don't forget some other equipment that is an aid to uniformity. In the acid plant there are the spray cooler for absorbing SO_3, radical changes in sulphur burning equipment, recording instruments of various kinds and, in the wood room, the multiknife chipper and weightometer, just to mention a few. All these improvements are an aid to the pulpmaker in utilizing the raw material at hand to the best advantage, and those mills lucky enough to have all these improvements already installed will indeed be fortunate when the competition again begins to make itself felt. However, blending different qualities into one uniform mass will always lower the maximum best and the result will be something in between.

Cleanliness

As to dirt, to a large extent the blame can be placed where it belongs, on the wood and woodpile. Knots and ingrown bark give the pulpmaker serious difficulties. There is equipment to rid the wood itself of knots and outside bark but only the surface is scratched by the time the wood reaches the chipper The cost would be prohibitive to do any more. In the mill it is expected that the knotters, screens, and bleaching equipment will do the rest. Here is still a great field open to the engineers and research men. In the author's opinion very little progress has been made in the last twenty-five years to radically change the screening equipment. A new principle was introduced in the Vortraps and they do a very good job in removing heavy dirt. The new Jonson screens and knotters that recently were introduced into this country look very promising but outside of those mentioned the flatscreens are the old standby. It might be that operators still do not know how to use them in order to get the best results. One operator believes that a short line and a high pitch are the only way to run flatscreens, while his competitor claims that the best results are with a long line and a very short pitch. Whichever the best way, operators are still looking for a means for absolute dirt removal from the pulp.

Better Forest Management

In conclusion it is proposed that there be better forest management and closer cooperation between the wood department and the mill operators. The forests should be recognized as national assets. Although the limitations of the wood resources have been known for a long time, very little is done in the way of preserving them. It is a pity, to say the least, how the lumber supplies have been used up and how the forest lands have been depleted. In the early days of lumbering the trees were cut with no regard to the future, lumber mills and pulp mills were started here, there, and everywhere, until today it is found that many mills are so far from the forest that they find it cheaper to import wood or close down altogether. This fact should be recognized by pulp producers, who, being directly concerned and interested in the future of the industry should advocate adequate laws to preserve the forest resources.

New TAPPI Members

The Executive Committee of the Technical Association of the Pulp and Paper Industry has elected the following to membership:

Henry H. Bell, Head of Paper Standards and Inspection Departments, Castanea Paper Company, Lock Haven, Pennsylvania, a 1937 graduate of Pennsylvania State College.

James D. Brown, Chief Engineer, Pulp and Paper Division, Sprout, Waldron & Co., Muncy, Pennsylvania, a 1924 graduate of the University of Toronto.

Lawrence L. Clapp, Chief Chemist, Florida Pulp and Paper Co., Pensacola, Florida. On leave of absence with 31st Air Service Gp. He is a 1936 graduate of College of Charleston.

Donald E. Cupp, Engineer, Gahagan-Byrne Associates, New York 4, N. Y., a 1921 graduate of Pennsylvania State College.

Paul W. Horeyseck, Chemical Engineer, Robert Gair Co., Inc., New London, Connecticut, a 1943 graduate of the University of Maine.

George N. Keyser, Salesman, Arkell Safety Bag Co., Chicago, Illinois, a 1930 graduate of the University of Chicago.

Chris Kurzweil, Plant Manager, Mystick Adhesive Products Division, Chicago Show Printing Co., Chicago, Illinois, a 1933 graduate of the University of Michigan.

Jack Noble, Laboratory Assistant, The Brown Paper Mill Co., Inc., Monroe, Louisiana. Attended Louisiana State College.

E. Milton Regier, Technical Representative, Hercules Power Co., Wilmington, Delaware, a 1931 graduate of Kansas State College of Agriculture and Applied Science.

Capt. Charles E. Reiley, Dallas Chemical Warfare Procurement District, 8th Service Command, Dallas, Texas, a 1937 graduate of Purdue University.

Robert J. VanNostrand, Assistant to Manager, New Products Division, The Brown Company, a 1943 graduate of the Institute of Paper Chemistry.

Walter E. Riley Chief Engineer, B-F-D Company, Plattsburg, New York, a 1932 graduate of the University of Maine.

Williem Rudolfs, Chief, Industrial Waste Research Dept., Rutgers University, New Brunswick, New Jersey, a 1920 graduate of Rutgers University.

Seymour J. Sheinkopf, Development Engineer, Rogers Corporation, Goodyear, Connecticut, a 1939 graduate of the Massachusetts Inst. of Technology.

Glendon A. Soule, Chief Chemist, Fitchburg Paper Company, Fitchburg, Massachusetts, a 1935 graduate of the University of Maine.

Joseph F. Theriault, Division Chemist, Robert Gair Co., Inc., Boxboards Div., Haverhill, Massachusetts, a 1928 graduate of Colby College.

James S. Tipka, Assistant Mill Research Engineer, Scott Paper Co., Chester, Pennsylvania, a 1937 graduate of the University of Delaware.

Arthur W. Redlin, Vice-President, Beach & Arthur Paper Co., Modena, Pennsylvania.

Willis C. Dickerman, Student, New York State College of Forestry, Syracuse, New York.

J. R. H. Van Nouhuys, Director of the Fiber Institute, Delft, Holland, is now visiting in the United States.

Christopher A. Cusack, chief engineer and assistant general manager of The Clondalkin Paper Mills, Ltd., Clondalkin Co., Dublin, Eire, is visiting American mills.

Reclaimer Treatment of White and Waste Waters*

By S. B. Applebaum[1]

Abstract

The reclaimer operates by upward filtration through a live blanket of suspended solids which it has recovered from the white water or waste water flowing through it. This blanket serves to catch and remove, by this filtering action, the suspended solids. After the proper thickness of blanket has collected, the concentrated suspended solids are bled off, through an integral concentrator, at the rate at which they are being recovered.

The recovery of water for reuse on the showers or other process uses is high—up to 97% of the water being recovered. Fiber recovery, with white waters and most waste waters, may be accomplished without the use of a coagulant. Operating costs for fiber recovery, therefore, are practically negligible and the degree of recovery is high. With waters containing from 1 to 9 pounds of fiber per 1000 gallons the effluent from the reclaimer has had a fiber content ranging from 0.00 to 0.20 pound per 1000 gallons and averaging around 0.1 pound. Filler recovery varies depending on types of filler and coagulant used, but, in general, will run 0.4 pound or less per 1000 gallons in the reclaimer effluent.

The treatment of various pulp and paper mill white waters and waste waters may be practiced to accomplish the following results: 1. recovery of water, 2. recovery of stock, and 3. avoidance of stream pollution.

Recovery and Reuse of Water

A large and ever increasing number of pulp and paper mills are faced with water shortages. In some cases, the shortages have been insufficient to limit production but have interfered with mill expansion. In other cases, the shortages have actually threatened curtailment of production.

Such conditions have been found both with ground water and surface water supplies. A ground water supply, for instance, may have been adequate when the mill was first built. Possibly at that time the wells were even free flowing. But, too often, mill expansions, the growth of neighboring industries, or the increasing water demand of a municipality cause a serious lowering of the water table. The sinking of new wells, scattered over a much larger area, may remedy the condition for a while but when these also show a steady lowering of the water table the prospects for future mill expansions are not bright.

Such conditions are not limited to ground water supplies for many surface supplies also are far from inexhaustible. During dry spells, the flows of even rather large rivers may show a most disconcerting shrinkage and, as for lakes, ponds, and reservoirs, unless they are extremely large, their levels may recede at at alarming rate, during seasons of scanty rainfall.

One obvious remedy for such conditions is to decrease the intake of raw water into the mill by treating, recovering, and reusing as much of the white and waste waters as is practically and economically possible. This will vary with different mills and different types of white and waste waters. In most of the cases, the amount of recovery that is possible is high—well over 90% and, in some cases, even higher.

This does not, of course, mean that the total water makeup for the mill can be reduced to under 10% of the present demand, for it is not always possible to reuse all of the recovered water and some wastage will occur. This is desirable for it serves as a blowdown to keep the dissolved matter present from concentrating to undue lengths. With certain waste

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[1] Formerly Vice-President, The Permutit Co., New York, N. Y.; now President, Liquid Conditioning Corp., New York, N. Y.

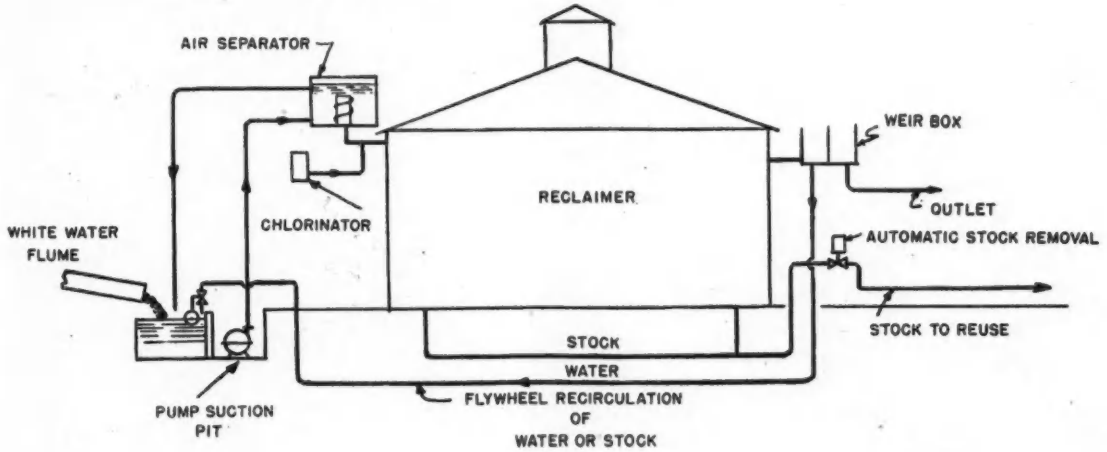


FIG. 1
Flow Diagram

water, for instance, it may be desirable to reuse them only once and then waste them. With others, it is possible to reuse a good portion of them a number of times. In any case, though, the savings in raw water requirements, effected by practicing recovery and reuse of waste waters, is very large.

As to the requirements for this recovered water, it should be low enough in suspended solids, especially in fiber content, so that it exerts no clogging effect on shower nozzles. Since the reclaimer to be described in this paper uses no wire but instead operates by filtering upwardly through a blanket composed of recovered stock, the removal of suspended matter is very complete. On numerous tests, fiber has never exceeded 0.2 pound per 1000 gallons and usually has been under 0.1 pound per 1000 gallons, and this fiber, of course, is the proverbial "frog hair" kind. Also, where fiber removal alone is required, the use of a coagulant usually is unnecessary. If inorganic filler, such as clay and calcium carbonate are present, the use of a coagulant may be required to produce a clear enough effluent. In such cases, the amount of filler left in the recovered water depends somewhat upon the type of filler and the coagulant used but, in general, this will run to less than 0.4 pound per 1000 gallons.

Recovered waters are frequently more valuable than the fresh waters for their pH values, due to the effect of the alum used in sizing the paper, are usually very close to those desired and therefore this effects notable savings in alum that would otherwise be used up in killing the alkalinity of the fresh water. Also, in many cases, the recovery of heat units in the recovered water is an added advantage. In general, then, it may be said that the recovery and reuse of water is not only desirable but that it usually is also profitable and this is especially the case when the recovered stock is reusable.

Recovery and Reuse of Stock

The amount of stock lost in waste waters is surprisingly large—over 50 tons per day, on a dry basis, in a number of the larger paper mills. To a great degree, this loss is because of the inherent inability of a wire to effect anything like a clean separation of suspended solids from water. Thus, when a mixture of fiber and filler hits the fourdrinier wire, a certain amount of fiber and filler is bound to pass through the wire.

Since the filler will pass the wire more readily than fiber, it is to be expected that the suspended solids in the white water will contain a relatively smaller proportion of fiber and a relatively larger proportion of filler than was present in the suspension before it hit the wire. This also holds true in the case of the wire on savealls.

Therefore, while the fourdrinier may receive some 80% fiber and 20% filler, the recovered solids from the mill waste water in some cases may contain only 10 to 20% of fiber and as much as 80 to 90% of filler. Obviously, also, when products are being made in which no filler is added, the recovered solids consist practically entirely of fiber and the ash content will be quite low.

However, the recovered stock with the high filler content is particularly stressed because the value of this filler is often overlooked. In fact, many mills keep very accurate records on the tonnage of fiber lost in the waste waters but pay practically no attention to the much greater amount of filler lost. Yet filler is a valuable product. It has to be purchased

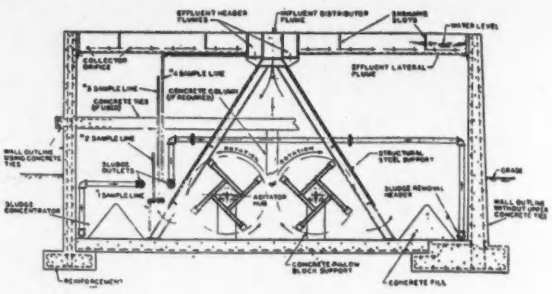


FIG. 2

or manufactured in the mill from purchased materials. Also its cost is not a negligible item for even the commonest and most widely used fillers will range from about $12 to over $40 per ton. So, if a mill is losing say 40 tons of filler per day in its wastes, it is losing about $500 worth of material per day or $150,000 in a 300 day year, and this is outside of the fiber loss which necessarily accompanies it.

Fiber is, of course, much more valuable than filler and fiber losses in most mills are far from negligible. Even a very small mill can readily lose over a ton of fiber a day in its wastes and losses of 5 to over 15 tons of fiber per day are common enough with the larger mills. These represent very expensive losses for fiber naturally is much more expensive than filler.

Both fiber and filler may be recovered in the reclaimer. If fiber alone is present, recovery is usually effected without the use of a coagulant as the fibers themselves seem to coagulate and form a suspended blanket of stock in the reclaimer, which very effectively filters the water as it flows upwardly through it.

In the Southland Paper Mills at Lufkin, Texas, as shown in the Carpenter and Porter paper, "Waste Water Utilization by Clarification," in PAPER TRADE JOURNAL of August 16, 1945, the operating cost for such a system was only 0.51 cents per 1000 gallons or $5.10 per million gallons. Unfortunately, when this appeared, the printer had put in a dollar sign instead of a cents sign so the figures read 100 times as large as it really was. In this case, also, the removal of fiber without any coagulant is so complete that the reclaimer effluent contains less than 0.1 pound per 1000 gallons of total suspended solids.

But when inorganic fillers are also present, the use of a coagulant is advisable. For most waste waters, dosages of several grains per gallon of alum will give a good coagulation. Activated silica has proven a valuable coagulation aid in certain cases, but whether to add it before or after the alum, or whether or not it should be used in any given case, should be decided by jar tests. The use of a coagulant will increase the above given operating costs roughly in the range of from $2.00 to $5.00 per 1,000,000 gallons.

As to the density of the stock discharged from the integral concentrator of the reclaimer, this will vary greatly with different waste waters. In general, recovered stock consisting almost entirely of fiber will concentrate in the range of about 1 to 4% density. When filler is present, the densities will range from about 3 to 8%.

While it is true that with most waste waters, recovery of valuable stock and reusable water can be effected, either with or without a coagulant as the

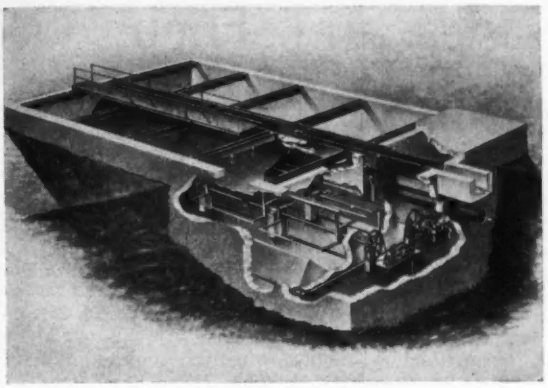


FIG. 3

case may be, at very reasonable costs, there are some waste waters which are expensive to coagulate and which furthermore yield a recovered solids for which no use has yet been found. This is especially the case with some of the wash waters from the caustic deinking process. These, while their pH value may not be extremely high, usually are highly alkaline and contain a heavy load of colloidal organic matter.

Coagulation tests on many of these waters, direct from the washers, indicate prohibitively high dosages of coagulant. In other cases, coagulant dosages, while high, are not prohibitively so. As to types of coagulants, alum, sulphuric acid, ferric sulphate, calcium chloride and lime have been tried. Of these, lime is by far the cheapest but a series of jar tests is, of course, required in each case in order to find out what coagulant is the cheapest, on the basis of its effectiveness as well as its dosage and price, and the range of dosages required.

Dilution of these waters with other waste waters often reduces coagulant dosages to very small fractions of those required on the undiluted water. Even a brief survey will often reveal in the mill another waste water that will admirably answer this purpose. As to what is to be done with the recovered solids, this is not so simple. In some cases, they will be concentrated and pumped to disposal pits. In other cases, after concentration, they probably will have to be dried and burned.

Avoidance of Steam Pollution

The industry is so familiar with the seriousness of the stream pollution situation that it is unnecessary to enlarge on it. This situation, of course, is not one that is faced by the pulp and paper industry alone. Practically all industries that have appreciable amounts of waste waters are also confronted with the problem of treating that waste water so as to make it conform to State Board of Health regulations.

Many of these other industries cannot recover reusable materials from the waste water and the recovered water itself is often of such a character that it has but limited, if any, uses.

In the pulp and paper industry, however, most waste waters can be treated so as to recover valuable stock and reusable water. Treatment costs, in general, are low and the recovered water and stock are usually worth many times the cost of treatment.

Principles of Operation

In the avoidance of stream pollution, the Permutit Reclaimer is a valuable tool for its principle of filtering through a suspended blanket of recovered stock, instead of a wire, results in an incomparably better removal of the suspended solids. Briefly, the reclaimer consists of inner and outer compartments. The water to be treated enters the inner compartment, which is equipped with mechanically operated agitators. If a coagulant is required, it is added to and agitated with the water in this compartment. The agitation is controlled so as to exert the maximum aid in floc formation.

The direction of flow of the water is downwardly through this inner, agitator compartment. At the bottom of this compartment, the water passes through openings into the outer compartment. It is in this outer compartment that the stock blanket forms, because this compartment has a horizontal cross-sectional area which increases as the water flows upwardly. Therefore, the upward vertical velocity of the water steadily decreases as it ascends.

While the velocity at the bottom is sufficient to prevent the settling of the stock the velocity at some level higher up is insufficient to lift the solids any further, and the water separates from the blanket in a fairly distinct plane. Thus, the particles form a suspended blanket of stock through which all of the water passes. The water leaves the reclaimer, through the flumes at the top, after it filters through this suspended stock blanket. As this blanket is some 7 or 8 feet in thickness, it is easily realized what an effective filtering action is effected.

Occupying a portion of the outer compartment of the reclaimer is the integral concentrator. As can be seen from the illustration of these, the water present in the concentrator has no upward velocity. Therefore, it has no lifting power on the stock which settles in and concentrates in this concentrator. These concentrators are equipped with automatic hydraulic operated gate valves so that concentrated stock can be bled off at the same rate at which stock is being collected. Electric eye control of this automatic blow-off has now been developed so that the top of the stock blanket can be maintained at any desired level. Preceding the reclaimer is an air release tank on the influent line to remove bubbles which might exert a buoyant action on the stock blanket.

Figure 1 shows the usual flow diagram. The raw water is first screened as it enters the pump suction pit to remove chips and slivers, etc. The pump elevates the water to the air separator from which it flows by gravity to the reclaimer. The effluent enters a weir box which splits the stream into two parts, one recirculating back to the suction pit, and the other to point of reuse. Recirculation of concentrated stock may also be found advantageous. A fly wheel effect is thus created which keeps the temperature and the flow rate through the reclaimer from fluctuating widely.

Figures 2 and 3 show a horizontal type of reclaimer made of concrete with plywood baffle walls adapted from the fresh water treatment field.

Rapid progress may be expected in the near future in the application of these reclaimers in solving these waste water treatment problems.

Wood Council to Meet October 2

The Northeastern Wood Utilization Council will meet at the New York State College of Forestry, Syracuse, N. Y., on October 2nd. Papers will be presented dealing with hardwood pulping, economics of pulpwood production, and the utilization of by-products. Attendance at the meeting is by invitation only and will be restricted.

Laminating Adhesives and Their Applications*

By Arthur Biddle[1]

Abstract

The ever increasing number of adhesives together with the laminating problems involved is causing the adhesive manufacturer, the laminator, and the maker of laminating and coating machines many vexing problems, and now that the pressure of war has been relieved it is well for the trade to consider ways and means of overcoming them. One of the causes of irritation is the reluctance of adhesive manufacturers to remove the veil of secrecy shrouding their products. This does not permit the laminator an opportunity to use his own knowledge and experience in properly applying the factory prepared adhesive. Too many generalities and too few specific cases and formulations tend to confuse the glue user. In an attempt to overcome this difficulty more attention is given to chemical and physical characteristics of the hydrophillic and hydrophobic adhesives and less stress is placed on their functions and uses. The correct application of the adhesive on the machine is just as important as the formulation of the adhesive.

Chemical combinations of water solubles of the true and pseudo gums, methyl celluloses, casein, bone, hide, and fish glues as adhesives and the part they play in the making of aqueous dispersions of synthetic resins is important. The addition of the ureas to adhesive ingredients is of special interest to the laminator. Among the new hydrophillic materials are the polyvinyl alcohols, sodium alginate, and sodium carboxy and methyl cellulose. Although these materials are not considered as strong adhesives in themselves, they are being used as essential emulsifying and aqueous dispersion agents. The addition of insolubilizing agents found necessary to give water resistance to water soluble adhesive in war packaging, is being found of even greater benefit in peace time packaging.

While hot melt and thermoplastic compositions are relatively few when compared with aqueous adhesives, the difficulties of application are not so few. The proper formulation of hot melt and thermoplastic adhesives will prevent blocking, bleeding, and irregular coating. Ambient conditions must also be given consideration. Formulations and application procedure for solvent laid heat seal, pressure sensitive, and thermosetting adhesives are also given consideration.

It may be that too much attention has been given to educating the designing engineer to create a laminating machine and not enough attention to the man who runs it. The function of the machine is not fully demonstrated until there are competent men to operate it. The engineer in the machine shop is interested in design and mechanical perfection. The laminating operator is only interested in producing a satisfactory roll of material on the rewind stand. Only too often, however, what he wants is at variance with what is actually produced. This is mainly because of lack of information of the inherent qualities of adhesives, webs, and working conditions on the part of both the designing engineer and the operator.

Unfortunately, the top chemical and engineering staff of a company who set policies or specify adhesives or web materials never work on the machine. The foreman or operator is all too often blamed for mistakes of judgment made by his supervisors. If it is desired to improve laminated products, it might be well to give a few fundamentals to the operators and to the foremen.

The adhesive manufacturer whose business is to make and sell adhesives, does not, of course, wish to disclose his processes or formulations or to discuss in too much detail the ingredients of his glue. Some of the ignorance formerly displayed by adhesive salesmen has almost entirely disappeared. Most manufacturers now employ men who have been trained in allied fields so they are able to talk intelligently on their adhesives and the uses.

There is still a little hedging on the part of some adhesive makers as to just what their products will and will not do—however, lack of continued patronage from large consumers will soon discourage such practices. This condition has not been wholly the fault of the gluemaker. His profits depend on trade secrets and all too often experience has taught him that it is not discreet to be too free with confidential information. While the great majority of plant chemists and chemical directors are above reproach; there are still a few who, to increase their own importance, are not above abusing a confidence given them. However, the common interests all shared to bring the war to a successful conclusion has done much to create mutual confidence between the supplier and the consumer. It is hoped the free interchange of information during the war will continue in peace.

To fully benefit from this interchange of information the men in overalls must be included—the operator—and the laminating room foreman. They too, must be included in the picture. The first step in bringing this about would be to give them a not too technical "brush up" on adhesives in general followed with a few remarks on their application.

Adhesives

The inherent properties of any adhesive means very little if they are not considered in the light of the properties of the end use materials. It is therefore as necessary to study the sheets or webs as it is to know the adhering substance. Once the problems to be met are fully understood it is merely a matter of either picking out or formulating the proper adhesive. Experience teaches that ignorance of the materials to be glued causes more trouble than the glue itself.

For instance, in the laminating of films such as cellulose or vinyl acetate, ethyl cellulose or cellophane to, say glassine, or parchment paper, the choice of

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 25-28, 1946.

[1] Reynolds Metals Foil Division, Reynolds Metal Co., Richmond, Va.

a laminant is dependent to a large extent on the plasticizer used in both the film and the paper. Some plasticizers will "sweat or bleed" to the surface and if they are incompatible with the adhesive used, poor adhesion will result. Since manufacturers of films often have difficulty in securing plasticizers, substitutes are used and the laminator runs into trouble. The answer to this is for him to constantly check each incoming shipment of film or web material and adapt his adhesives accordingly.

Inasmuch as the adhesive art has grown to such proportions as to stump even the experts, it is no wonder laminators or glue room foremen are often at wits ends to maintain trouble-free production. While many books can and have been written on adhesives, only actual working contact with them will give one the final answers.

To more clearly understand the functions and peculiarities of the various adhesives they must first be separated into their general types and their specific uses outlined. Generally speaking, all water absorbing or water soluble glues are known as hydrophillics. Some organics like certain phenol formaldehydes, are soluble in both water and alcohol and a few gums will tolerate substantial amounts of alcohol without coagulating. Although zein (the alcohol soluble portion of cornstarch) is soluble in pure alcohol, it makes a better solution when 92 to 98% alcohol-water solvent is used.

While it is well known that the water in aqueous glue mixtures swell paper fibers, it is well to determine the water content of the glue being used. By doing this an aqueous glue containing from 40 to 50% water may be used without causing undue stretch in the web before the drying operation or wrinkling and curling in the finished product. Where alkalinity and stiffness will permit, silicate of soda will answer this purpose. Where water resistance or high humidity is not a factor, one may turn to the more flexible and neutral dextrine or urea starch, with or without sodium silicate.

Polyvinyl Acetate and Buna Styren

If high solid content aqueous glues are needed for water resistance then the polyvinyl acetate or Buna styrene dispersions should be used. However, both have at present, an undesirable monomer odor that may preclude their use in food packaging. It is hoped that the manufacturers will be able to remove the odor or else the trade must wait until the natural rubber latex is again received from the eastern plantations.

In many cases the commonly used GRS type 3 synthetic latex can be used in place of the natural rubber latex. A knowledge of their differences may prevent glue room trouble. An alkaline or ammonical solution of casein, starch, or glue will mix with the GRS latex but a lime solution of casein (calcium casinate) will immediately coagulate the solids out of the dispersion. However, either an ammonical or a lime solution of casein or starch will mix with the natural rubber latex. On the other hand nearly all casein solutions will be coagulated from the aqueous polymerized polyvinyl acetate solution. While acid starches and polyvinyl alcohol solutions are compatible with it, the organic solvent solution of polyvinyl acetate does not, of course, act the same.

The organic solvent solution may be dispersed in practically any colloid and be compatible, but the resultant mixture will retain the solvent and this is often objectionable. The solvent type of aqueous dispersion and the polyvinyl acetate that has been polymerized, when in its aqueous state makes good pressure sensitive adhesives when properly and sufficiently plasticized. By coating the web with the water dispersion, drying, and then pressure laminating, bonds may be obtained with dense papers, metal foils, or nonabsorbing films.

Vegetable Gums

Lowest in order of adhesive strength of the hydrophillic colloids are the real or vegetable gums, such as arabic, quince seed, and Irish moss. The gummy and dried extracts of the above appear to form true colloidal solutions. Gums such as karaya, tragacanth, agar agar, pectin, or locust kernel do not really form solutions but merely swell in water. Of the last named, karaya swells the most. Saponim a non-nitrogeneous extract from the Saponiaria root is somewhere between the true gums and the gums that only swell in water.

The gums most commonly used as emulsifiers are arabic, tragacanth, Saponim, and sometimes, karaya. Agar agar and algin or sodium alginate although too expensive for most adhesives, are sometimes used in food packaging. Water soluble methyl cellulose and its sodium salt (sodium carboxymethyl-cellulose) are now being used extensively as adhesive additions for synthetic and natural latex in emulsions and dispersions. The water soluble celluloses possess low toxicity, are greaseproof and extremely fungi resistant. The methyl celluloses and its several derivatives are compatible with most other hydrophillic colloids.

With the exception of the natural dispersion of the aqueous polymerization product of polyvinyl acetate most dispersions are alkaline. When residual alkali is not desired, ammonium hydroxide is used. When used with metallic foils it leaves no corrosive agent and permits resin dispersions to be irreversible after drying. A study of the emulsifying amines is necessary for one who wishes to understand dispersions and emulsions better.

Many water soluble or dispersed adhesives may be made more water resisting when dry by the addition of formaldehyde to the aqueous solution. It is advisable to add the formaldehyde to a dilute solution of aqua ammonia before mixing with the adhesive. Inasmuch as the formaldehyde and ammonia forms hexamethyltetramine *in situ*, a similar result may be obtained by the addition of the later chemical.

The value of gums lie not so much in their adhesive strength as in their dispersing properties, their ability to envelop in disperse phase nonwater soluble substances. There is another and more recent use for gums and water solutions of untreated corn starch. Occasionally weak adhesion is desired between two webs until further processing is accomplished, after which delamination is desired. If weak starch or gums are used they can be washed off the delaminated webs if necessary.

Starch

Next in strength in the series of hydrophillic colloids are the glucoses, starches, and their degraded products, the dextrines. Glucose, due to its property of crystallizing, is seldom used alone. It is mixed with glycerine, sorbitol, or other humectants. Many glue formulas use it with bone or fish glue or with dextrine and starch. Its high initial tack or adhesion is often used to an advantage in formulations having ingredients whose maximum strength increases with time. The treatment of starch to heat under pressure

with diluted hydrochloric and the subsequent neutralization with a mild alkali; clarifying and then concentrating the liquor, comprise the essential steps in the making of glucose. Its property of surface adhesion and lack of penetration into porous materials increases its use when admixed with other adhesives.

As to starch, simply add anything; the end product will possess adhesion of some sort. The heterogeneous nature of patent and commercial formulations attest to the truth of this. There are, however, well established conversion processes for starch to give it definite properties. Of the many starches, corn, cassiva, and potato, receding in the order named, are the types extensively used. Cassiva starch, or cassiva meal, when formulated with lime, caustic soda and/or sodium carbonate is used in the wood veneer field and in making laminated fiber boards. The addition of natural rubber latex to cassiva glues increase their flexibility and water resistance as well as their adhesiveness to metals, glass, hardwoods, and plastics. The addition of several per cent of caustic soda to cassiva breaks it down sufficiently for most adhesive purposes.

The starch as made from wheat by the Greeks thirty centuries ago is a far cry from the chlorinated and torrefacted products of today. Besides the treatment of starch-water slurry with chlorine, the addition of acids or acid salts also act on the starch granules so that they are no longer capable of swelling when treated with hot water. Starches heated in water with diastase and/or amylase enzymes are greatly reduced in viscosity and improved in adhesion. The neutral nature of enzyme treated starches make them ideal for additive agents to either alkaline or acid substances or where a hydrogen ion concentration other than 7 or neutral is undesirable.

Dextrine, made chiefly by heating starch under exact control conditions is one of the main ingredients of gumming adhesives. It is also used to give tack to starch, silicate, and gum mixtures. When starch is heat treated in the presence of an acid, British gum is formed.

The addition of methylol urea to starch gives greater tack and some water resistance but the odor of generated formaldehyde may be objectionable. The use of thiourea gives somewhat similar results but produces a sulphurous odor that may not be desired. The use of ordinary urea does away with both of the aforementioned difficulties. The addition of insolubilizing agents like chromates, zinc chloride, formaldehyde, or para-formaldehyde all tend to increase water resistance but care should be taken to choose agents that are not injurious to the finished lamination.

Zein

Zein or a commercial product known as Mazein has many properties not well known and among which might be mentioned the ability to heat seal. When used as a coating it is in some respects superior to casein besides being heat sealing which casein is not. It also keeps oil inks on the surface and makes a much better printing job. When certain inexpensive papers are treated with zein a sheet resembling glassine is obtained. Zein coatings on porous paper also prevent wax bleeding. Besides being soluble in alcohol it is also soluble in 2-nitro-1-butanol.

Polyvinyl Alcohol

Although polyvinyl alcohol is somewhat expensive from a coating standpoint, its use as a greaseproofing ingredient and as an addition agent is valuable. It may be added to dextrines, casein, starches, soyabean meals, and nearly all emulsions or dispersions, whether acid or alkaline to stabilize them. Its solubility in both water and alcohol increases its utility as a formulating substance in either water or alcohol mixtures. Its water resistance when in dry form is increased by the addition of dimethylol urea with an acid salt catalyst or by the use of formaldehyde, chromium compounds, dibasic acids, copper — ammonia compounds and zinc-ammonia compounds. The chief plasticizer for P.V.A. is glycerine but the use of any considerable amount of glycerine causes the resin to absorb water and sweat in humid atmospheres. For some purposes triethylene glycol, tetraethylene glycol, or hexaethylene glycol may be used as a plasticizer. Water immiscible plasticizers such as triacetin and methyl phthalyl ethyl glycolate may be used when water absorbtion is a problem.

A new hydrophillic resin, polydyhydroxy alcohol, should receive closer study. Besides having many of the properties of polyvinyl alcohol, its cold water resistance and hot water solubility should make it of interest in the adhesive trade.

Soyabean Flour

Soyabean flour or meal as well as its treated product "Prosize" has not been mentioned heretofore because it can be substituted for and reacts to treatments similar to casein although not giving the same strength that casein gives.

Casein

Chemically, casein is a protein having albuminous characteristics; actually it is an amino mystery. Since the first batch of casein was made at the turn of the present century by Mone R. Isaacs in a barn in Philadelphia, it has grown to be one of the major articles of commerce. In its simplist form it is nothing more than unseasoned cottage cheese. If 18 parts of sodium bicarbonate is added to 100 parts of cottage cheese, on the dry basis, an excellent edible adhesive will result.

From the adhesive standpoint, it ranks highest among all other materials. If however, best results are to be obtained, the right type must be selected for the particular job. For solutions of low viscosity the natural soured or lactic acid casein is used; for solutions of high viscosity and lower adhesive strength, the sulphuric acid precipitated casein is used. Never use rennet caseins in adhesive formulations. Rennet precipitated casein is insoluble in most casein solvents, being the base of casein plastics.

The utility of casein depends on the chemicals used to dissolve it in water. There are three distinct types of casein solutions: 1. ammonical solutions (redissoluble), 2. alkaline or base solutions, and 3. alkaline earth solutions. The ammonical solution of casein is made by dissolving 100 parts of casein in from 400 to 700 parts of water and 16 parts by weight of commercial aqua ammonia. It is comparatively weak, is miscible with many other neutral or alkaline colloids and makes a good dispersing agent for resin solutions and hot waxes. A reasonable degree of water resistance can be secured by using 1 to 2% of formaldehyde on the basis of the dry casein. Alkaline or base solutions may be made by dissolving in water 100 parts of casein with the aid of from 10 to 16 parts of borax, sodium carbonate, trisodium phosphate, or metso. When caustic soda is used as a solvent, 5 parts is ample to cause solution of the casein.

Heat will assist solution of the casein in both of the above types but should never be used to bring about solution of the third type.

Alkaline earth-casein solutions are caused by the inter-reaction of slaked line, (calcium hydroxide) with a base or a salt. Pure lime will dissolve casein (base of many water paints) but the resultant product is extremely viscous and doughy.

A typical water-resisting alkaline earth-casein formulation is:

Casein (natural sour)	100 parts
Sodium fluoride	8 parts
Tri-sodium phosphate	7 parts
Sodium carbonate	5 parts
Slacked lime	20 parts
Kerosene (when packed dry)	2 parts
Water	240 parts

This glue is used as a wood veneer glue and is too alkaline for paper or cloth. The addition of equal or greater amounts of natural rubber latex to the above formulation increases its flexibility and water resistance, and it may then be for wood to metal—wood to cloth and fiber board laminations. The casein mixtures most used in the packaging trade are the ammonical solutions and the alkaline or base solutions with or without fluid resins or rubber latex dispersed in them. Casein and silicate of soda is an excellent laminant for all kinds of absorbent sheets or webs.

Glue

Bone, hide, and fish glues form a group all their own and to some extent can be used interchangeably. In order to make bone or hide glue fluid and of utility to the laminator, it is treated with acetic or similar acids and if necessary, neutralized with a mild alkali. Such glues are miscible with gums or starches which give them greater adhesive strength. Recently the liquefication of bone and hide glue by the addition of urea has increased its value to the laminator: Being substantially odorless and of negligible toxicity it can be used in many types of sheets, both dense and porous. Water resistance of bone and hide as well as fish glues may be increased by the addition of a small amount of potassium or sodium bichromate, formaldehyde, formic acid or alum. Glycerine, sorbitol, or diethylene glycol tend to make such glues more flexible but at the same time makes them more water absorbing.

Fish glue, although possessing a slight odor is a good laminant because of its wide operational limits. Its slower setting time must be taken into consideration when quick tack is desired. This deficiency can be overcome by the addition of more tacky adhesives. Its long spreadable life prevents its drying on rollers or knives or in pans. Not being subject to gellation, uniform thickness can be secured under almost any conditions.

Several other adhesive materials such as peanut meal, corn-cob gum, and lignin may soon be on the market in quantity. They may be used as aqueous cold setting or thermosetting adhesives according to their method of manufacture.

During the first world war and before rubber latex and resin glues had become articles of commerce, blood albumen was used extensively as a water resisting, thermosetting glue. Its use has declined in favor of phenol and urea formaldehyde adhesives but its value as an ingredient of certain thermosetting phenolic glues is being considered.

Silicate of Soda

Last but not least of the better known hydrophillic adhesives is silicate of soda. It is one of the most versatile of the inexpensive laminants. It may be used as is, or with other alkaline formulations. Acid substances precipitates out free silica and makes it useless as an adhesive. Aging increases its water resistance, which at first is rather poor. When selecting a silicate for a particular job, the ratio of SiO_2 to Na_2O must be given careful consideration as it effects viscosity, gellation and adhesion to various surfaces. The brands having low soda (Na_2) ratio are termed "short". As the relative amount or ratio of Na_2O to SiO_2 increases, the solutions increase in tackiness. The shorter the solution the quicker the "set". However, this can be overcome by the addition of colloidal inhibitors such as water soluble gums. Silicate of soda is sold in both solution and soluble powder form. The latter is often an essential ingredient in commercial powdered casein glues. Of all the adhesives, the silicates are the hardest to make flexible or to plasticize, there being no satisfactory flexibilizing agent known other than small amounts of glycerine or natural rubber latex.

When used as an adhesive it adheres wood, veneer, cloth or paper to each other or to metal. When solutions of high solids are used it stays on the surface and does not bleed through the web. Its adaptability to any kind of laminating machine coupled with its property of adhering to almost any surface, makes silicate of soda a useful adhesive.

Silicons

There has been several new adhesive members added to the silicon family. One, "condensed" ethyl silicate is a light brown liquid consisting predominately of tetraethyl orthosilicate with small amounts of polysilicates. The substantially pure tetraethyl orthosilicate is a colorless liquid having a mild ester-like odor. Both are completely soluble in alcohol. Their utility lies in their property of hydrolyzing of ethyl alcohol and silica acid which in turn dehydrates to a fire resisting adhesive form of silica (SiO_2). Today it is used as a ceramic binder but tomorrow it may be used as a laminant.

A long hoped for addition to the supply of adhesives is found in the silicones. Thermosetting in nature they have excellent moisture resistance and complete lack of carbonization on long exposure to temperatures as high as 250°C. For short periods of time silicone adhesives will stand even higher temperatures without deteriorating. Being electrically nonconductive silicone adhesives may be used for electrical laminations without fear of fire or breakdown. Their use as an additive agent to other organic solvent adhesives and thermoplastics give interesting and ofttimes unexpected results.

Hydrophobics

Adhesives coming under the other broad classification are the hydrophobics. While many of them may be soluble in alcohol, others are soluble in ketones, aliphatic and aromatic solvents such as petroleum naphtha, or solvents such as benzol or toluol. This classification includes hot melts, thermosetting and thermoplastic as well as pressure sensitives, cold setting, and solvent laminants. The line of demarcation between some is very little because a hot melt may also be a thermoplastic; a heat sealing laminant, as well as, a pressure sensitive or a solvent adhesive according to the plasticizer and solvent used. Mobility may be secured through heat plasticization or by the addition of a solvent. Asphalt is one of the most common materials that may be used for any of the above may also be applied in aqueous dispersed phase.

Bitumens

Since Noah caulked his ark with pitch from the slime pits near Sodom and Gomorrah many other uses have been found for bitumens. The dispersion of petroleum and natural asphalts with the aid of hydrophillic colloids and/or surface active agents such as the alcohol sulphates, and amines such as triethyanolanime or morpholine has given a new series of low cost nonpenetrating laminates that were used in making the wartime "V" board. The war measurably increased the use of nonbleeding asphalts as laminating media due to their availability, low cost, nontoxicity, uniformity, and ease of operation. Much of the lead foil-paper combinations used in war packaging was adhered with specially treated asphaltic material. Its rather high moisture vapor transmission, although objectionable, was overlooked because of its low temperature flexibility and high temperature stability. The oxidizing of asphalts in their molten condition with the aid of blown steam and/or air makes what is known as "blown asphalt". The product is tougher, more flexible and resistant to cold flow and temperature changes than the untreated bitumen. Among the plasticizers that give fluidity and tack to petroleum asphalt and natural gilsonate are: Rosin ester of ethylene glycol, hydrogen rosin methyl ester and the straight rosin methyl abietates. The pentaerythritol resin and resin esters add tack and toughness to asphalts as also do the vinsol ester gums. The hydrocarbon thermoplastic terpen resins, being compatible with asphalt and also with many waxes, and many natural and synthetic resins and film-formers, are interesting material to consider when formulating asphaltic mixtures. The addition of resins and petroleum waxes assist in the working of bitumens and also makes a more aqueous dispersible material. Wax lowers the melting point of higher melting asphalts and also lowers their moisture vapor transmission.

Wax

Until comparatively recent years the chief waxes in commercial use were paraffin, beeswax and a few vegetable waxes such as bayberry and carnauba.

Microcrystalline, or amorphous petroleum wax, having a much smaller crystal structure has many properties such as greater adhesion to smooth and rough surfaces than the plain paraffin. The latter material while less adhesive is also less "blocking" and as such is used in breadwraps, household paper, and in sulphite tissues for pressure mounting to plastic films and to lead and aluminum foil. It is also used as a cheapener for the more costly amorphous wax to which it also imparts nonblocking properties. The value of the amorphous waxes come from their increased adhesive and cohesive strength. The addition of certain alkyd and terpene resins to both types of petroleum wax gives added tack and in some cases, reduces blocking tendencies. It is difficult to mix toughening film formers like ethyl cellulose with wax but the addition of resins compatible to both permits the wax to tolerate the incompatible substance.

Care should be taken in adding resins to wax lest the resins settle out and cause trouble on the application machinery. The "dryer" (containing less oils) the less tendency the wax will have to bleed through laminated papers, "Dry" waxes being less adhesive, may require tacky resins to restore adhesiveness. The dryness generally shows up in the melting point. However, some high melting point tank bottom or scale waxes may not be dry. In this case their penetration number will be high and when placed on clean bond paper, will show an oil halo because of added petrolatums.

The substitution of wax emulsions in the beater when the paper is being made, tends to make the paper more resistant to surface water and aqueous glue penetration. Wax, when emulsified also gives water resisting properties to casein, starch, and other aqueous colloids when they are used as coating or laminants.

The melting points of plain paraffin are generally between 120 to 152°F. Ordinary amorphous wax runs from about 145 to 170°F. While true acetone extracted scale and tank bottom microcrystalline wax starts at around 170°F. and may be secured up to and beyond 200°F. The latter waxes are the purified product of the sludge or settlings from crude petroleum storage tanks. The darker brands may be had at a price considerably lower than the more refined and fully filtered amber brands.

Isobutylenes

At this point it might be well to mention the isobutylenes and their polymers. These materials are long and straight chain molecular structures that are extremely resistant to acids, alkalies, most ordinary chemicals, sunlight, oxygen, and its brother ozone; also to most vapors and to water. With all these good qualities it is difficult to work. However, its dielectric factor, miscibility with waxes and asphaltics; its use in pressure sensitive, hot melt and other adhesives and its plasticizing effect on many resins makes it worth the trouble of incorporation. The 10,000 mole material is quite viscous and is preferred to the higher mole types. When molecular weights up to 180,000 are reached the material is a tough rubbery solid that only prolonged agitation in solvents or mastication on a roller mill will place in usuable condition. Its emulsification in casein with the aid of triethanolamine makes a tacky laminant.

Hot Melts

As stated before every resin is a hot melt from rosin to mixtures of polyethylene. Every resin manufacturer can give the table of compatibilities and physical characteristics of his various products. Although hot melts are, by nature, thermoplastic, the reverse is not always true. For instance, a hot melt wax or an asphalt is thermoplastic but ethyl cellulose which is definitely a thermoplastic is not used alone as a hot melt. It does, however, give hot melts toughness and tends to raise their resistance to heat.

The hot melt made by treating alkyd resins with wax during the polymerization of the resin makes an extremely good combined coating and laminant. A tough hot melt may be made as follows:

8 parts ethyl cellulose
42 parts hydrogenated methyl ester of rosin
50 parts hydrogenated rosin

True thermoplastic laminants differ from hot melts in that while hot melts are applied *hot*, thermoplastics as such may be applied hot, calendared or applied in solvent form and after the solvent has evaporated, cause adhesion by passing the two webs through hot rollers or platens. This permits the ingenuity of the formulator a wide field of operations with any thermo active ahhesive substance.

As examples, wax, a hot melt, when mixed with polyisobutylene may be calendared or dissolved in suitable solvents and applied as a solution. When the coated webs are passed through hot rolls adhesion takes place. If a tackifier is added heat will be un-

necessary as only pressure is needed to cause adhesion. The same is true of the more mobile coumarone resins.

Any discussion of hot melts or thermoplastics if used as heat sealing coatings, would be incomplete without mentioning the amides and the chlorinated natural and synthetic rubbers.

Polyamide Resins

The polyamide resins are only about eleven years old and are, in general, reaction products of polybasic acids and poly functional amines. When combined with derivatives of drying oil fatty acids a new series of hot melt and thermoplastic resins result. The resins are not easily ignited; are resistant to hydrocarbons, oils, greases and gasoline. They resist the action of mild acids, alkalies and water. They are not tacky; do not block and retain their adhesive strength almost to their melting point. Toxicity reports have been most favorable.

The polyamide resins make good laminants to all types of webs and metallic foils and add moisture vapor impermeability to paper laminations. When dissolved in their proper solvents and plasticized they may be solvent laid as laminants or as plain or heat seaing coatings or lacquers.

Chlorinated Rubber

The chlorinated rubbers may be applied in solvent phase or heavily plasticized and spread with a knife or calendar. Their thermoplastic nature makes them good heat sealers. When added to hot melt compositions they make the material tougher. The addition of rosin esters, and hydrogenated rosin makes chlorinated rubber tackier. Being extremely fire resistant it makes a good adhesive for fire resisting laminations and structures. While speaking of fire resistance, the addition of the fire resisting aroclor resins to hot melt compositions should not be overlooked. The same is true of the polystyrene resins. Although not classified as hot melts, they give valuable toughening and chemical resisting qualities to other compatible hot melt materials and increase the cohesive strength of the more crystalline thermoplastics.

Hot melt compositions may also be made by adding about 20% of modified alkyd resin to about 80% vinyl chloride acetate resin with a plasticizer like di-butyl phthalate or tricresyl phosphate.

While most of the hot melt compositions are heat sealing in function, heat seals as such generally require more toughness and being applied as coatings must be nonblocking, a property not always possessed by hot melts or thermoplastics. Chief among the heat seals might be mentioned plasticized cellulose nitrate, cellulose acetate, polyvinyl acetate, polyvinyl chloride, acetate and ethyl cellulose lacquers. The prime object in applying heat seals is to apply as high a solid content as possible and to this end a discreet selection of low viscosity resins together with the best solvent must be made. A number of the major petroleum companies are advancing nonblocking resin modified waxes for heat sealing purposes.

Most film formers will make heat seal coatings but it is the choice of plasticizers that make them satisfactory coatings for certain uses. The choice of plasticizer is so broad that the wise formulator will accept the advise of the manufacturer as to the best plasticizer that is compatible with his product and which will make that product adhere to a certain material.

Although thermosetting resin adhesives are used extensively in the wood veneer field there are times when the packaging trade can make use of them in fiberboard compositions. Thermosetting adhesives, because of the "setting" time element and the elevated temperature needed to bring about polymerization are not meant to be used in continuous web and fast operation. When urea, phenol, melamine, and resorcinol are separately combined with formaldehyde or para-formaldehyde, thermosetting adhesives of varying qualities are made. The recent types set at much lower temperatures and are workable on some paper laminating machines.

Recently formulated combinations of phenolic resins with polyvinyl butyral have been found to make very good water resisting laminants for paper-plastic-aluminum foil structures.

Urea Formaldehyde

The use of urea formaldehyde for packaging extends chiefly to adding it to starch as a means of improving water resistance. Unadulterated cold setting urea-formaldehyde may be used as a paper board laminant but care should be taken to note its setting time and clean all apparatus before it begins to "set." If this precaution is not taken, prepare to stop production for a day or so until the machinery is dismantled and the solidified adhesive is chiseled off the apparatus.

The Laminating Operation

Regardless of what make or type of machine is used in the laminating operation certain requirements are necessary to produce a good laminated product with minimum scrap and maximum production. Among these might be mentioned:

1. The delivery of workable material to the machine. Rolls of metallic foil indented on edges; plastic material that is wrinkled or blocked; paper too damp or too dry are unprofitable to begin with. A laminant that will settle out, is lumpy or on the point of coagulation, never increases the value of the end product. No operator can produce good results with bad material.

2. The machine must be mechanically perfect. The laminating machine should be inspected daily for rolls out of a true circle; loose bearing or bad allignment. These defects cause wrinkles, uneven tension on the web, and lack of uniform glue application, which shows up in streaks, bulges, or no adhesion at all in the dried web. It is not enough that driven glue applicator rolls be *nearly* alike, they must be of the same diameter to the thousandth of an inch. A thin web passing between two driven rolls, with a differential of 2 thousandths of an inch will soon cause the web to break because of the tension set up by the difference in sizes. There should also be close synchronization between the unwind and the rewind stands. Because some laminations may stretch or shrink in the laminating process, it is necessary to be able to vary the unwind and rewind speeds to prevent too much slack or to relieve tension as the case may be.

3. Whatever the drying medium, specific attention should be given to the drying of each type of lamination. Whether hot air; electric or steam plates, infrared ray sun lamps; drying drums or direct flame is used, there should be means for heat control.

4. Cleanliness around the laminating machine is a must. This applies not only to the application rolls, the glue pan, the drying oven or drying surface but to the floor and surrounding surfaces. Particles of dust, bits of paper, plastics, etc. lying around prevent quick

action and are a sign of poor operation which is reflected in poor quality products.

5. Handling of rolls of finished laminations. Considerable loss is often caused in careless handling of material from the rewind through the slitting and spooling operations. Smooth and properly curved dollies or felt padded trucks will do much to prevent deformation of rolls and scuff marks on the finished webs.

The foregoing are things all average operators and foremen are expected to know. To be really good at their jobs they should also know the chemical and physical peculiarities of the laminants. Simple adhesives such as the gums, starches, and dextrines, or mixtures of the two do not require much knowledge because being soluble in water, are easy to apply or to thin out if they thicken in the pan or on the application roll. However, they should not be thinned indiscriminately because the throwing of the glue solids off balance will also affect the absorption and the drying of the glue. When thinning glues in the machine pan a quick check should be made to insure proper solids and viscosity. Any change in solids or viscosity different from what the laboratory trial runs have found to be satisfactory, cannot but produce inferior goods. Especially is this true when running, say 10 to 15 pound tissues where too much adhesive will cause wrinkles, web breakage and ridges to build up at the rewind.

Aqueous Emulsions

While most operators are familiar with the difficulties attendant on using dextrines, starches, silicates, and gums, the newer water emulsions and dispersions are causing them some concern. The most commonly used adhesive dispersions in use today are the polyvinyl acetates, and synthetic rubbers of the GRS type 3.

Polyvinyl acetate emulsions are of two types. The natural emulsion formed in the manufacture of polymerization process contains no solvent. It is acid reacting and is generally supported with a neutral water soluble colloid like hide or bone glue or with starch. Several brands on the market are stabilized with polyvinyl alcohol.

The other type of vinyl emulsion is made by dissolving either the polyvinyl acetate or the copolymer of the acetate and chloride in a minimum of suitable solvent and then dispersing the dissolved mass in a water soluble colloid. As in nearly all adhesive emulsions, wetting agents and other agents are added.

Before the war natural rubber latex was used by nearly all laminators. This material would stay in suspension as long as it was kept alkaline with aqua ammonia. Even then it required a stabilizing agent such as glue, starch, or casein. By adding vulcanizing agents, a considerable degree of water resistance can be achieved. When casein is used, resistance to organic solvents is also achieved, which adds to the difficulties of the operator in cleaning rolls, pans, and removing bits of glue from the drying oven.

While emulsions of the synthetic latex are water resistant they are not as resistant on the whole, as the natural latex. All types of resin or rubber emulsions tend to build up on the edges of the applicator rolls due to drying. Small resin or rubber "monkies" are formed and must be sieved out. Hot caustic soda solution sometimes will remove the dried rubber or resin when organic solvents will not or cannot be used because of their detrimental solvent action on rubber rolls. For this reason Neoprene or other solvent resistant rubber should be placed on all laminating machines. A roll swollen only slightly will cause trouble. The foreman should always know the type of adhesive being used and the type of rolls on the machines. Even 10% of solvent in a water emulsion of polyvinyl acetate will ruin ordinary rubber rolls in an hour or so.

Waxes

While considerable wax was used in laminating a few years ago, new waxes and combinations of waxes and resins are now being used. Mixtures of wax and polybutylene are best applied with a knife or a calendar if the polybutylene exceeds 10% of the composition. In all cases, combinations of wax and resin or wax and polybutylene should be given an exhaustive laboratory test before being used on the wax mounting machine. A few degrees difference in temperature, speed, or roll pressure may cause trouble in the mounting. Although the line cut or gravure applicator roll has found satisfactory use in all mounting operations, it is especially useful in wax mounting. The amount of wax can be easily measured by using different lined rolls. If the wax is chilled on the applied surface and then pressure mounted attention should be given to temperature controls on the chilling rolls as well as on the pressure rolls. If this is not done, part of the lamination will be adhered satisfactorily while other parts will be either loose or will cause blocking in the roll, because of warm wax bleeding through the paper.

When wax mounting metallic foils to dis-similar webs, the difference in contraction and expansion of the several webs must be taken into account to prevent buckling—alligator crazing or wrinkling.

Filtration

The Reinhold Publishing Company has just issued "Theory and Practice of Filtration" by George D. Dickey and Charles L. Bryden (346 pp. 6 x 9). This book limits itself to the general concept of filtration as applied to the separation of solids from liquids and gases by the use of porous media.

The first part of the volume deals with the history, theory and principles, as a foundation for the proper understanding and interpretation of filtration. The second part deals with various types of filters.

Among the subjects covered are: preparation for filtration; filter media; gravity, pressure and vacuum filters; hydraulic and squeeze presses; laboratory filters, oil filters and separators; sewage clarification, centrifuges; air, gas and light filters; filter application and flow sheets; and installation and operation.

Copies may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd Street, New York 17, N. Y. at $6.00 per copy.

Dr. John Campbell Starts Consulting Practice

Dr. John Campbell of Moore Business Forms, Niagara Falls, New York, Printers of Business Forms, has now completed the installation of Manufacturing Control in their Highland Avenue Plant, Niagara Falls, N. Y., and is now available for consultation at 702 Buffalo Avenue, Niagara Falls, N. Y.

Dr. Campbell has had wide experience in the paper industry, having been associated with Abitibi Power and Paper Company in Canada, and also International Paper Company in newsprint, fine papers and Kraft.

Week's Record of Trends in The Paper and Pulp Market

Office of the PAPER TRADE JOURNAL,
Wednesday, June 5, 1946.

Production of paper and paperboard continues at record levels with over-all demand as strong as ever. It will be difficult for production to catch up with demand so long as the durable goods shortage continues to force the excessie sive buying of non-durable goods by consumers who have money to spend and want to spend it. On the brighter side is the encouraging fact that wood pulp inventories have been maintained at levels higher than had been expected. At the end of March inventories of domestic market wood pulp had increased 12 percent since last October. In the same period imported market wood pulp inventories had increased 88 percent.

An increase in pulpwood inventories of more than a half a million cords over the end of March 1945 highlights the change from war to peace despite the repatriation of prisioners of war from the southern section of the pulpwood industry. Labor supply in the pulpwood industry shows definite improvement throughout the country. Shortages of automotive equipment for replacement parts holds back full production. However, the South was the only section of the country which showed a decline in receipts in the first quarter of this year compared to the first quarter of last year, and the decrease was only 4 percent, while the Lake States region showed the largest increase at 32 percent.

The index of general business activity for the week ended May 25 fell to 110.9 from 117.7 in the previous week, compared with 143.4 for the corresponding week in 1945. The index of paperboard production rose to 158.3 from 157.5 in the previous week, compared with 164.1 for the corresponding week in 1945.

Paper production for the week ended May 25 was estimated at 99.2 percent, compared with 98.3 for the preceding week, with 92.0 for the corresponding week in 1945, with 90.0 for 1944, with 91.8 for 1943, and with 91.4 percent for the corresponding week in 1942.

Paperboard production for the week ended May 25 was 93.0 percent of capacity, compared with 92.0 percent for the preceding week, with 97.0 for the corresponding week in 1945, with 96.0 for 1944, with 95.0 for 1943, and with 77.0 percent for the corresponding week in 1942.

Wood Pulp

An unsettled market condition prevails for wood pulp despite the resumption of many contracts with Swedish producers. Sweden is still short on coal, while our own coal strike necessitated a halt in exports. Thus, Swedish shipments of wood pulp may be slower in arriving than had been anticipated.

April consumption of wood pulp reduced inventories 55,000 tons, leaving a total stock of 595,000 tons at the end of April. Domestic production of wood pulp was 897,000 tons in April, 18,000 tons below the record set in March.

Rags

Offerings of British khaki and blue rags, which importers have had difficulty moving, sold this week at 4c dock. Demand for new cotton cuttings is very heavy and the competitive bidding results in ceiling prices or over.

Roofing rags are steady but mills refuse to pay asking prices of $75 and $80 dock. Heavy wipers remain at $50 to $55 per ton. Mills buy classification rags at a ratio of 3 to 1 for No. 1s and No. 2s over the higher priced stock.

Old Rope and Bagging

Market remains steady with little likelihood of any large import movement in the near future. Buyers see no reason for paying higher prices on imports when sisal supplies are sufficient to take care of their needs. Other fibers are steady. Hard jute sold this week at 4c mill.

Bagging market is relatively quiet. Foreign gunny sold at better than $4 dock. Domestic gunny is steady at $3.75 to $4 shipping point and $4.30 to $4.50 delivered. No. 1 scrap bagging was slow at $4.25 to $4.60 delivered. Small lots of mixed bagging brought $3.12 to $3.25.

Waste Paper

Demand for quality features the current waste paper market. Mills are taking shipments from regular suppliers and refusing stock from others, good or bad. In some cases, the book and board mills have withdrawn from the market on certain grades except for occasional purchases to help out old-line suppliers.

Mixed and news was less easy to dispose of this week than corrugated. However, it was all disposed of in one direction or another at ceiling prices.

The Bureau of Census shows that exports of waste paper have made a slow but steady increase over a period of six months, starting in October 1945. In that month 824 tons were exported, which rose to 469 in November, 1,284 tons in December, 2,317 tons in January, 2,431 tons in February, and 3,490 tons in March. However, even the March figure which is the largest to date since the war, was barely one half of one percent of the 635,192 tons received by American paper and board mills.

Londergan Talks to New England Trade

BOSTON—Harry Londergan, Director of Statistical Research Division, National Paper Trade Association, at a very informative and stimulating luncheon meeting of the Fine Paper Division of the New England Paper Merchants Association, held at the Parker House recently, presented a survey of New England Fine Paper Merchants Distribution Costs and Profits for the Calendar Year 1945. In his usual clear, convincing manner, he made comparisons with the national picture as set forth in a booklet entitled "Fine Paper Distribution —from 1940 to 1945, Inclusive," soon to be mailed to each member.

Norman E. Scott, executive secretary of the New England Association, spoke regarding the favorable progress of the new member program—State and Government problems in obtaining certain paper requirements—and sales, through War Assets Administration, of paper declared surplus by U. S. Army and Navy.

Samuel T. Baron, president of the New York Paper Merchants Association and president of the Royal Paper Corporation, gave a highly interesting analysis of the increased cost of cartage and its effect upon operating profits of paper merchants, advancing several forward looking thoughts in this connection for the further consideration of the members.

Paul M. Jones, vice president, Fine Paper Division, opened the meeting with appropriate remarks and presented James J. Dwyer, president of the association. Following his comments, Mr. Jones rendered a brief report concerning developments at the recent NPTA Convention in New York, which he attended in the additional capacity of Regional Fine Paper member of NPTA Board of Directors.

Some 40 members of the division from various sections of New England attended.

Cyanamid Promotes Brown, Places Leigh Up State

Joseph Brown, Jr., formerly American Cyanamid & Chemical Corporation sales representative for the upper New York state area, has been transferred to the Paper Chemicals Department at the New York City office and placed in charge of sales of casein, china clay, satin white, casein spreaders and casein solvents. Stuart B. Leigh succeeds Mr. Brown as sales representative for the Corporation in upper New York State. Mr. Leigh recently returned to the Corporation from foreign service as Lieutenant (j.g.) in the United States Navy.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, June 5, 1946.

BLANC FIXE—Market remains active. The pulp is currently quoted at $40 per ton, in barrels, at works; the powder is currently quoted at $60 per ton, f.o.b. works.

BLEACHING POWDER—Demand reported very active. Supply situation is reported favorable at this date. Quotations are unchanged. Prices on bleaching powder range from $2.50 to $3.10 per 100 pounds, in drums, car lots, at works.

CASEIN—OPA maximum prices on processed acid-precipitated casein are as follows: 10,000 pounds or more, 33 cents per pound; 2,000 pounds, 33¼ cents per pound; less than 2,000 pounds, 33¾ cents per pound, f.o.b. shipping point. Imported, 33 cents per pound.

CAUSTIC SODA—Demand continues very heavy. Production large, but deliveries slow. Market tight. Supply of drums short. Solid caustic soda is quoted at $2.30 per 100 pounds; flaked and ground is quoted at $2.70 to $2.95 per 100 pounds.

CHINA CLAY—Relatively moderate demand reported. Quotations remain unchanged. Supply short. Domestic filler clay is currently quoted at from $8.50 to $15 per ton; coating clay is quoted at from $12 to $22 per ton, at mine. Imported clay is quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Market tight with inventories lowered and demand strong. Quotations unchanged. Chlorine is currently quoted at $2.00 to $2.25 per 100 pounds, in single unit tank cars, f.o.b. works.

ROSIN—Demand steadily increasing. "G" gum rosin is quoted at $6.74 per 100 pounds, in barrels, at Savannah; "FF" rosin at $6.70 per 100 pounds, in barrels, at New York; seventy percent gum rosin size at $6.95 per 100 pounds, f.o.b. works.

SALT CAKE—Very heavy demand is currently keeping inventories low. Prices remain unchanged. Domestic salt cake is quoted at $15 per ton, inbulk. Chrome salt cake is quoted at $16 per ton. All prices in car lots, f.o.b. shipping point.

SODA ASH—Heavy demand continues for over-all requirements. Market remains tight with demand above output. Bulk shipments steady. Bagged lots still slow. Quotations continue unchanged. Current prices, car lots, per 100 pounds, are as follows: in bulk, $.95; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Demand continues to exceed supplies. Prices steady. Starch prices continue unchanged. The pearl grade is quoted at $3.72 per 100 pounds; powdered starch at $3.83 per 100 pounds; all prices in bags; car lots, f.o.b. Chicago.

SULPHATE OF ALUMINA—Demand reported active. Supply situation fair. Quotations continue unchanged. The commercial grades are quoted at from $1.15 to $1.35 per 100 pounds, in bags, car lots, f.o.b. works. The iron free is currently quoted at $1.75 to $2.00 per 100 pounds, in bags, at works.

SULPHUR—Quotations on sulphur continue to conform to prevailing market prices. Demand moderate. Annual contracts are quoted at $16 per long ton, f.o.b. mines; the price at Gulf Ports is $17.50 per long ton.

TALC—Prices on talc continue unchanged. Demand steady. Domestic grades are currently quoted at from $16 to $30 per ton at mines; Canadian at $24 to $30 per ton. All prices in car lots.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

Standard News, per ton—
Roll, contract ..*$67.00 @ —
Sheets ..... 75.00 @ —
* OPA Maximum Price.

Kraft—per cwt.—Carload Quantities
Zone A, Delivered
Superstandard Wrapping .....*$5.25 @ —
No. 1 Wrapping.. *5.00 " —
Standard Wrapping*4.75 " —
Standard Bag.....*4.375 " —
* OPA Manufacturers' Prices.

Tissues—Per Ream—Carlots
White No. 1..... 1.12½ " —
White No. 1 M. G. 1.10 " —
White No. 1½ .... 1.00 " —
White No. 2..... .90 " —
Anti-Tarnish M.F.. 1.20 " —
Colored ..... — " —
Kraft ..... .95 " —
Manila ..... .90 " —

Toilet—1 M. Sheets—Per Case
Unbleached ..... 4.25 " —
Bleached ..... 5.70 " —
Unbl. Toilet, 1 M.. 4.16 " —
Bleached Toilet.... 5.70 " —

Paper Towels, Per Case—
Unbleached, Jr. ... 2.20 " —
Bleached, Jr. ..... 3.20 " —

Manila—per cwt.—C. l. f. a.
No. 1 Jute .....11.25 @ —
No. 1 Manila 35 lb. 6.00 " 7.00

Boards, per ton—
News .....*54.00 @ —
Chip .....*54.00 @ —
Sgl. Mla. Ll. Chip*65.00 @ —
White Pat. Coated*79.00 @ —
Kraft Liners 50 lb.*74.00 " —
Binders Boards ...84.00 " 116.00
* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—
White, Assorted Items
Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$39.10@$46.00	$40.25@$47.25
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	29.90 " 35.00
75% Rag	23.00 " 27.00	24.15 " 28.25
65% Rag	.... "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—
White, Assorted Items
Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$10.55@$12.75	$11.70@$14.25
No. 2	9.65 " 11.75	10.80 " 13.25
No. 3	9.20 " 11.25	10.35 " 12.50
No. 4	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—
White, Cased Paper
Delivered in Zone 1:

No. 1 Glossy Coated...	$13.65@$15.50
No. 2 Glossy Coated...	12.40 " 14.00
No. 3 Glossy Coated...	11.60 " 13.25
No. 4 Glossy Coated...	11.15 " 12.75
No. 1 Antique (watermarked)	10.25 " 11.75
No. 2 Offset	9.60 " 11.00
A Grade E. F.....	9.35 " 10.75
A Grade S. & S. C....	9.60 " 11.00
B Grade E. F.....	8.85 " 10.25
B Grade S. C.....	9.10 " 10.50
C Grade E. F.....	8.55 " 9.75
C Grade S. C.....	8.80 " 10.00
D Grade E. F.....	8.25 " 9.50
D Grade S. & S. C....	8.50 " 9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers' Prices, Less Freight.
Not Exceeding OPA Allowances.

Bl. Softwood Sulphite.....	$94.00
Unbl. Softwood Sulphite.....	82.00
Bl. Hardwood Sulphite.....	91.50
Unbl. Hardwood Sulphite.....	79.50
Bl. Glassine Sulphite	97.00
Unbl. Glassine Sulphite	86.00
N. Bleached Sulphate.....	94.00
S. Bleached Sulphate.....	88.00
N. Semi-Bleached Sulphate...	89.00
S. Semi-Bleached Sulphate...	83.00
N. Unbl. Sulphate.....	76.00
S. Unbl. Sulphate.....	69.50
Bl. Soda	84.00
Unbl. Soda	80.00
Groundwood	58.00

Transportation Allowances

Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$12.50
Lake Central	12.50
Southern	15.00
West Coast (in area)	9.50
West Coast (out area).....	15.50

	50%-80% Air Dry Weight
Northeast	$10.50
Lake Central	10.50
Southern	13.00
West Coast (in area)	8.50
West Coast (out area)	14.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$7.50
Lake Central	7.50
Southern	10.00
West Coast (in area)	6.50
West Coast (out area)	12.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

Domestic Rags

New Rags
(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—
New White, No. 1. 6.50 @ 7.25*
Silesias No. 1..... — " 5.75*
New Unbleached . 6.75 " 7.50*
Blue Overall ..... — " 5.50*
Fancy ..... — " 3.50*
Washables ..... — " 3.00*
Bleached Khaki Cuttings ..... — " 4.25*
Unbleached Khaki Cuttings ..... — " 3.50*
* OPA Maximum Prices.

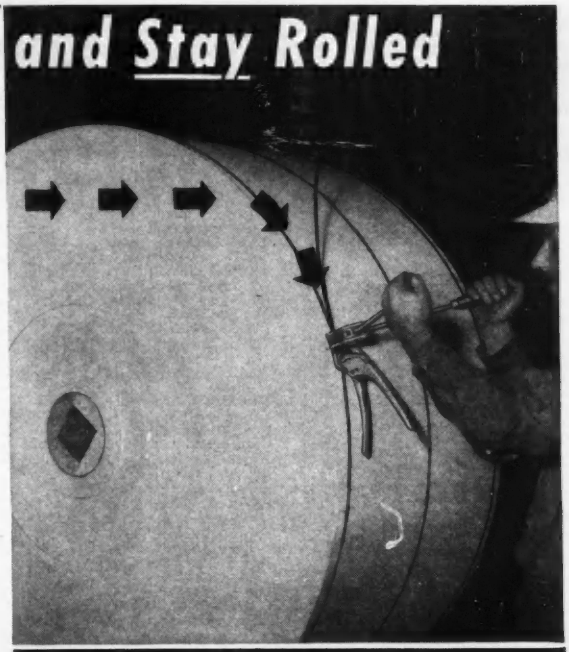
Ready to Roll . . . and Stay Rolled

with

STANLEY STEEL STRAPPING

Big rolls of paper are made safe for shipment quickly and easily with Stanley Steel Strapping. Rolls *stay* rolled, and the Strapping protects edges of the paper from rough handling in transit.

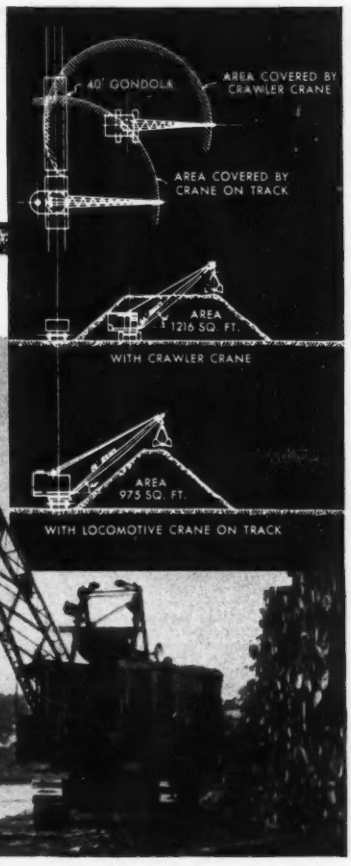
The time-tested Stanley Steel Strapping System will give your products this strength without bulk whether you ship by land, sea or air—in reel, bale, case, crate or carton. Tools, reels and accessories are included for every application. Send for details.



THE STANLEY WORKS [STANLEY]

Steel Strapping Division . . . New Britain, Conn.

for GREATER COVERAGE in the PULP YARD


40' GONDOLA
AREA COVERED BY CRAWLER CRANE
AREA COVERED BY CRANE ON TRACK
AREA 1216 SQ. FT.
WITH CRAWLER CRANE
AREA 975 SQ. FT.
WITH LOCOMOTIVE CRANE ON TRACK

● The Northwest Crawler Crane expands your operating range and more than doubles it over locomotive equipment. Look at the diagram! The Northwest gives you a full 180° coverage, assuring better use of available areas and vastly increased storage within reach of either hauling equipment or pond.

Your Northwest can travel up and down the length of a train without an extra line of track. It can at the same time be supplying pulp for the mill either by loading trucks or other conveyances or by feeding to the pond.

Crawler mobility means high loading capacity whenever you want it—in the pulp yard, at the mill or at the loading dock. It does things no other type of material handling equipment can do. There is a size for every problem.

NORTHWEST ENGINEERING COMPANY
1815 Steger Bldg., 28 E. Jackson Blvd., Chicago 4, Ill.

NORTHWEST

Old Rags

White, No. 1—			
Repacked	*3.80	@	—
Miscellaneous	*3.20	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Thirds and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.30	"	—
Roofing Rags—			
No. 1	*1.55	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
Old Manila Rope	5.75	"	—

* OPA Maximum Prices.

Foreign Rags

Pre-War Quotations

All Prices Nominal

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	2.25	"	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.25	@	3.30
Wool Tares, light	3.25	"	3.50
Wool Tares, heavy	3.50	"	3.75
Bright Bagging	3.25	"	3.50
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	5.50	"	—
No. 1 Sisal Strings	*4.00	"	—
Mixed Strings	1.50	"	—

* OPA Maximum Prices.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Envelope Cuts	3.12½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
Mixed Books	1.10	"	—
No. 1 White Ledger	2.30	"	—
No. 2 Mixed Ledger, colored	2.00	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.95	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	.90	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
Old Corrugated Containers	.82½	"	—
Mill Wrappers	1.10	"	—

Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	.17½	"	—
Paper Makers	.17	"	—
Tube Rope	.19	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—
(Hard Fiber)			
Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila	—	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill)

Shirt Cuttings—	
New White No. 1	.07¼
New White No. 2	.05¾
Light Silesias	.05¾
Black Silesias, soft	.03¾
New Unbleached	.07½
Washable Prints	.04¼
Washable No. 1	.03
Blue Overall	.05½
Cottons—According to grades—	
Washable Shredding	.01¾
Fancy Percales	.04¼
New Black Soft	.03¼
Khaki Cuttings—	
Unbleachable Cotton Cuttings	.03½
Bleachable Cotton Cuttings	.04¼
Men's Corduroy	.03½
Ladies' Corduroy	.03
Cottonades	.03¼

Domestic Rags (Old)

White No. 1—Repacked	3.80	@	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
White No. 2—Repacked	2.90	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	@	3.50
No. 1 Clean Bright—			
Sisal Strings	.04	"	—
No. 2 Clean Bright—			
Sisal Strings	.03	"	—
Sisal Jute	.02½	"	.02¾
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares, heavy	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila.)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Hard White Shavings, unruled	2.87½	@	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Overissue News	1.10	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	2.75	@	2.90
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	* —	"	4.00
Mixed Rope	1.60	"	—
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	4.50	"	5.00
Jute Carpet Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.00	"	3.25
South America	—	"	3.25

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices, Baled

No. 1 Hard White Shavings, unruled	2.87½	@	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Overissue News	1.10	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	2.75	@	2.90
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	* —	"	4.00
Mixed Rope	1.60	"	—
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	4.50	"	5.00
Jute Carpet Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.00	"	3.25
South America	—	"	3.25
Wool Tares—			
Foreign	(nominal)		
Domestic	4.25	"	—
Aust. Wool Pouches	—	"	3.65
New Zealand Wool Pouches	—	"	3.50
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Roofing Bagging	1.35	"	—

* OPA Maximum Prices.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	@	.04¾
Fancy Percales	.04¼	"	.05
New White No. 1	.06¾	"	.07
New Light Flannelettes	.05½	"	.06
Canton Flannels, Bleached	.06	"	.06¼
Underwear Cutters, Bleached	.06¼	"	.06½
Underwear Cutters, Unbleached	.05¾	"	.06
Silesias No. 1	.06	"	.06¼
New Black Silesias	.03	"	.03¼
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.06½	"	.06¾
Blue Cheviots	.05½	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03¼	"	.03½
Corduroy	.03½	"	.03¾
New Canvas	.06¼	"	.06½
B. V. D. Cuttings	.06¼	"	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	@	—
Miscellaneous	3.20	"	—
White No. 2—			
Miscellaneous	2.65	"	—
Twos and Blues, Repacked	2.20	"	—
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—
Miscellaneous	1.80	"	—
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—
No. 2	1.45	"	—
No. 3	1.35	"	—
No. 4	1.35	"	—
No. 5, Quality A	1.55	"	—
Quality B	1.30	"	—
Quality C	.95	"	—
Old Manila Rope	5.75	"	—

* OPA Maximum Prices.

Foreign Rags

(F. o. b. Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

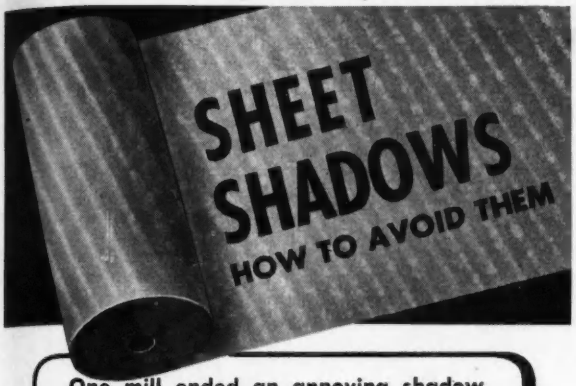
CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices, Baled

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
No. 1 White Ledger	2.30	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—



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Paper and Paper Stock Imports At New York and Other Ports

NEW YORK IMPORTS

WEEK ENDING JUNE 1, 1946

SUMMARY

Newsprint	10,444 rolls
Printing Paper	35 cs.
Paperhangings	7 bls., 50 pkgs.
Drawing Paper	7 cs.
Filter Paper	10 cs.
Photo Paper	4 cs.
Tracing Cloth	11 cs.
Tissue Paper	19 cs.
Decalcomania Paper	69 cs.
Kraft Paper	856 rolls
Sulphite Paper	992 rolls
Miscellaneous Paper	1 cs.

NEWSPRINT

World Telegram, Stuart Prince, Cornerbrook, N. F., 464 rolls.

N. Y. Sun, Stuart Prince, Cornerbrook, N. F., 900 rolls.

Clinton Paper Corp., Stuart Prince, Cornerbrook, N. F., 475 rolls.

International Paper Co., International No. 1, Gatineau, 307 rolls.

H. G. Craig Co., G.D.D., Donnacona, 467 rolls.

News Syndicate Co., Colabee, Baie Comeau, 7397 rolls.

H. G. Craig Co., Kermic, Donnacona, 434 rolls.

PRINTING PAPER

Oxford University Press, Alexander Ramsay, Liverpool, 35 cs.

PAPERHANGINGS

W. H. S. Lloyd & Co., Appleton Victory, London, 7 bls., 50 pkgs.

DRAWING PAPER

Winsor & Newton, Inc., Appleton Victory, London, 3 cs.

H. Reeve Angel & Co., Inc., Appleton Victory, London, 4 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., Appleton Victory, London, 10 cs.

PHOTO PAPER

J. J. Gavin & Co., Inc., Appleton Victory, London, 4 cs.

TRACING CLOTH

E. Dietzgen & Co., Empire Wye, Liverpool, 11 cs. (bleached).

TISSUE PAPER

B. F. Drakenfeld & Co., Empire Wye, Liverpool, 8 cs. (pottery).

Meadows Wye & Co., Alexander Ramsay, 11 cs. (gauze carbonizing).

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Empire Wye, Liverpool, 23 cs. (duplex).

B. F. Drakenfeld & Co., Alexander Ramsay, Liverpool, 46 cs. (duplex & simplex).

KRAFT PAPER

Penson & Co., Gripsholm, Gothenburg, 581 rolls.

Cohoes Envelope Co., Inc., Gripsholm, Gothenburg, 275 rolls.

SULPHITE PAPER

Cohoes Envelope Co., Gripsholm, Gothenburg, 992 rolls.

MISCELLANEOUS PAPER

Jay Madden Corp., Krageholm, Kotka, 1 cs.

RAGS, BAGGING, ETC.

Chase National Bank, Empire Wye, Liverpool, 16 bls. wool rags.

(———), Empire Wye, Liverpool, 144 bls. wool rags; 14 bls. threadwaste.

C. A. Brady, City of Sydney, Bombay, 129 bls. cotton threadwaste.

C. Kutz, City of Sydney, Bombay, 100 bls. cotton waste.

Green Textile Associates, City of Sydney, Bombay, 400 bls. cotton waste.

New England Waste Co., City of Sydney, Bombay, 650 bls. cotton waste.

Riverside Mills, City of Sydney, Bombay, 200 bls. cotton waste.

New England Waste Co., City of Sydney, Tuticorin, 664 bls. cotton waste.

Burkhart Manufacturing Co., City of Sydney, Cochin, 237 bls. cotton waste.

New England Waste Co., City of Sydney, Cochin, 43 bls. cotton waste.

Ayres, W. C. Jones Co., City of Sydney, Cochin, 300 bls. cotton waste.

Lush Cotton Products Co., City of Sydney, Cochin, 50 bls. cotton waste.

Irving Trust Co., Aracaju, Rio de Janeiro, 95 bls. cotton picker waste

Royal Manufacturing Co., Aracaju, Rio de Janeiro, 34 bls, cotton thread waste.

Corn Exchange Bank Trust Co., Aracaju, Rio de Janeiro, 79 bls. cotton picker waste.

Public National Bank Trust Co., Aracaju, Rio de Janeiro, 125 bls. cotton picker waste.

Castle & Overton, Inc., Elysia, Glasgow, 74 bls. threadwaste.

(———), Elysia, Glasgow, 457 bls. paperstock.

A. Bloch, Alexander Ramsay, Liverpool, 97 bls. new cotton cuttings.

R. C. Harvey, Alexander Ramsay, 7 bls. wool rags.

J. E. Bernard & Co., Alexander Ramsay, Liverpool, 18 bls. wool rags.

E. Butterworth & Co., Inc., Alexander Ramsay, Liverpool, 99 bls. cotton waste.

(———), Alexander Ramsay, Liverpool, 52 bls. cotton waste.

New England Waste Co., Rio Santa Cruz, Buenos Aires, 51 bls. cotton waste.

S. H. Waldestein, Coer d'Alene Victory, Bombay, 116 bls. cotton waste.

Padawer & Co., Coer d'Alene Victory, Bombay, 646 bls. cotton waste.

Artomatic Waste Co., Coer d'Alene Victory, Bombay, 50 bls. cotton waste.

Riverside Mills, Coer d'Alene Victory, Bombay, 1048 bls. cotton waste.

Lush Cotton Products Co., Coer d'Alene Victory, Bombay, 900 bls. cotton waste.

Green Textile Associates, Coer d'Alene Victory, Bombay, 200 bls. cotton waste.

McKay & Co., Coer d'Alene Victory, Bombay, 200 bls. cotton waste.

C. Comiter Co., Coer d'Alene Victory, Bombay, 100 bls. cotton waste.

(———), Coer d'Alene Victory, Bombay, 428 bls. cotton waste.

Empire Fabrics Co., Coer d'Alene Victory, Bombay, 290 bls. cotton waste.

Buffalo Batt & Felt Corp., Coer d'Alene Victory, Bombay, 69 bls. cotton waste.

Camden Fibre Mills, Coer d'Alene Victory, Bombay, 72 bls. cotton waste.

Brandwein Mazur Co., Coer d'Alene Victory, Bombay, 200 bls. cotton waste.

Ayres, W. C. Jones Co., Coer d'Alene Victory, Bombay, 300 bls. cotton waste.

Atlantic Waste Co., Coer d'Alene Victory, Bombay, 25 bls. cotton waste.

New England Waste Co., Coer d'Alene Victory, Bombay, 607 bls. cotton waste.

HIDECUTTINGS

Karr Ellis & Co., Empire Wye, Liverpool, 388 bags (dry).

Transatlantic Animal By-Products, Inc., Alexander Ramsay, Liverpool, 240 bags.

BONES

Darmstadt Scott & Courtney Co., Rio Santa Cruz, Buenos Aires, 780 bags (granulated).

CASEIN

Hercules Powder Co., San Angelo Victory, Buenos Aires, 1000 bags (ground).

Bankers Trust Co., San Angelo Victory, Buenos Aires, 500 bags (ground).

WOODPULP

Cellulose Sales Co., Inc., Bernhard Ingelsson, Soraker, 1200 bls. dry sulphite pulp, 200 tons.

Cellulose Sales Co., Inc., Bernhard Ingelsson, Hernosand, 1536 bls. dry sulphite pulp, 308 tons.

Price & Pierce, Ltd., Bernhard Ingelsson, Kopmanholman, 3900 bls. dry chemical pulp, 660 tons.

(———), Bernhard Ingelsson, Gefle, 3658 bls. dry sulphite pulp, 731 tons; 1778 bls. dry sulphite pulp; 254 bls. dry sulphite pulp, 50 tons.

Pulp Sales Corp., Krageholm, Kotka, 300 bls. bleached sulphite pulp; 3250 bls. unbleached sulphite pulp.

WOODPULP BOARDS

Jay Madden Corp., Krageholm, Kotka, 434 bls. woodpulp boards; 133 bls. Beer mat boards.

PHILADELPHIA IMPORTS

WEEK ENDING JUNE 1, 1946

Pulp Sales Corp., Krageholm, Kotka, 3219 bls. unbleached sulphate pulp; 6009 bls. unbleached sulphite pulp; 750 bls. bleached sulphite; 7620 bls. dry mechanically ground woodpulp.

Jay Madden Corp., Krageholm, Kotka, 305 bls. woodpulp boards.